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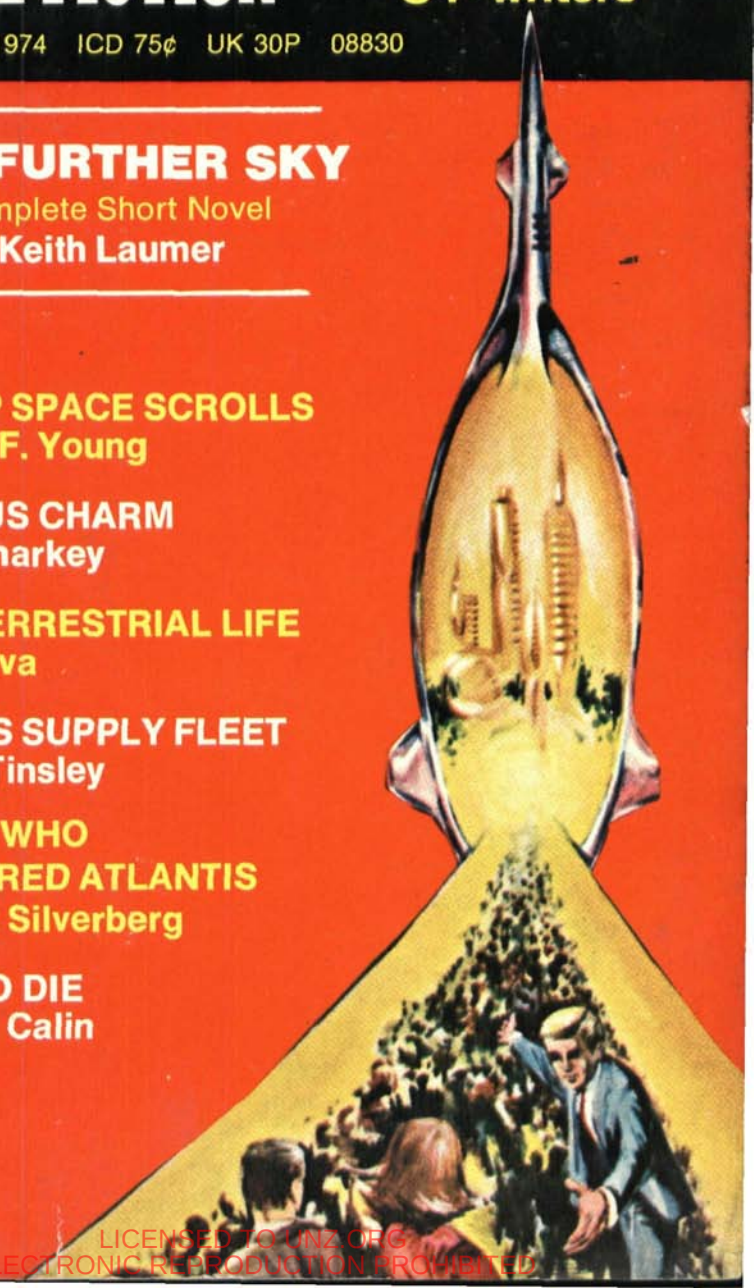

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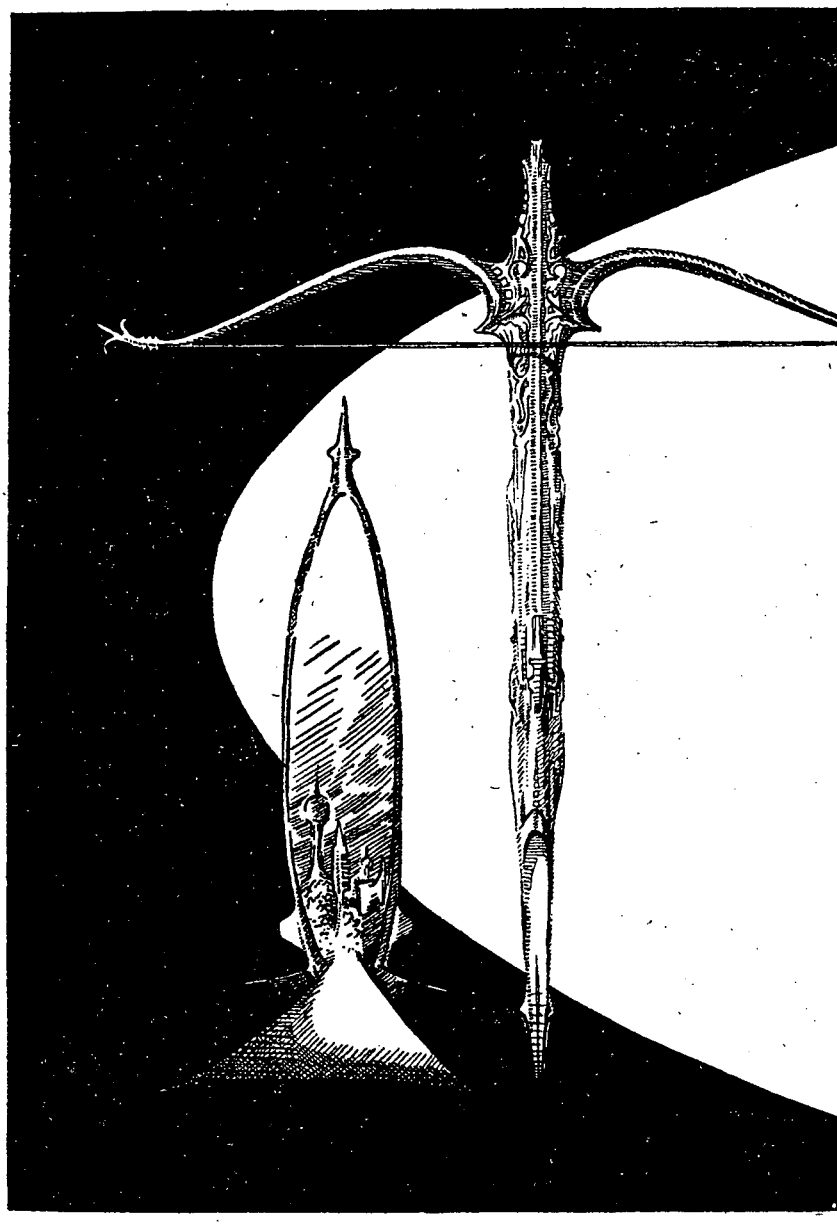

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There are Shangri-Las in Space, too . . . For instance, through a Portal on Pluto lies Fair Galliale . . . and through another Portal there lies the mind-shaking truths that live under . . .

The Further Sky

By KEITH LAUMER

Illustrated by ADRAGNA

IT was late. The third level walkaway was deserted except for a lone Niss standing under the glare of a polyarc fifty feet ahead. Vallant hurried along, only half-listening to the voice of the newser from the tiny tri-D set he carried:

". . . perturbation in the motion of Pluto. The report from the Survey Party confirms that the ninth planet has left its orbit and is falling toward the Sun. Dr. Vetenskap, expedition head, said that no explanation can be offered for the phenomena. Calculations indicate that although Pluto will cross the orbit of the Earth in approximately forty-five years, an actual collision is unlikely; however serious consequences could follow a close passage of the body . . ."

Vallant turned the audio up. Ahead, the immobile Niss was staring at him with small red eyes.

". . . inexplicable disappearance from Pluto of a Survey scouting vessel," the newser was saying. "The boat's crew, operating in the northern hemisphere of the uninhabited planet, had left it in order to take Solar observations; the stranded men, rescued after a three-day ordeal, stated that they observed the scout to rise, apparently under full control, and ascend to extreme altitude before being lost from view. The boat was fully

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fueled, and capable of an extended voyage. The Patrol is on the look-out for the stolen vessel, but so far—"

As Vallant came abreast of the waiting Niss, it moved suddenly into his path, reached out a four-fingered parody of a human hand, twitched the set from his grip and with a convulsive motion, crushed it flat.

"Here, what the devil—" Vallant started. But the Niss had already tossed the ruin aside, turned away to resume its immobile stance under the glare of the light.

Vallant stared at the creature, the dusty grey-green hide, furrowed like an alligator's, the flaccid crest that drooped over one pin-point eye, the dun-colored tunic and drab leather straps that hung loosely on the lean, five-foot body.

He took a step; the Niss turned its narrow head to face him. The tiny eyes glittered like rubies.

"Why did you smash my Trideo?" Vallant said angrily.

The Niss stared for a moment longer; then it opened its mouth —a flash of snow-white in the gloom—and flicked a tongue like a scarlet worm past snake-teeth in an unmistakable gesture.

Vallant doubled a fist. Instantly, the Niss flipped back the corner of its hip-length cape, exposing the butt of a pistol-like apparatus with a flared muzzle.

Vallant locked eyes with the alien; the words of the ten-times-daily public service announcement came back to him:

"Remember—it is our privilege to welcome the Niss among us as honored guests, who share their vast knowledge with us freely, to the betterment of all mankind."

The Niss stood, waiting. Vallant, fists still clenched, turned and walked away.

AT the door to his apartment block Vallant took out his electro-key, pressed it in the slot. From behind him there was a tiny sound, a whistling cough. Vallant turned; a wizened face on a turkey neck peered at him.

"Ame," a voice as thin as smoke said. "Lord, boy, you look wonderful . . ." The old man came closer, stood round-shouldered, one veined hand clutching the lapels of an oddly-cut coat. A few strands of wispy, colorless hair crossed the age-freckled skull. White stubble covered the sagging cheeks; the pale lines of old scars showed against the crepy skin.

"Guess you don't know me, Ame . . ."

"I can't say that I do," Vallant said. "What—"

"That's all right, Ame; no way you could, I guess . . ." The old man held out a hand that trem-

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bled like a leaf in a gentle breeze. "We served in the Navy together; we've been through a lot. But you don't know. It's been a long time . . ." the wrinkled face twistde into an unreadable expression. "Longer than you'd think."

Vallant shook his head. "You must have me confused with someone else, old timer. I've never been in the Navy."

The old man nodded as though Vallant had agreed with him. "There's a lot you need to know about. That's why I came. I had to, you see? Because if I didn't, why, who knows what might happen?"

"I don't—"

"Look, Ame," the old man cut in urgently, "could we go inside?" He glanced both ways along the walkaway. "Before one of those green devils shows his ugly face . . ."

Vallant looked at the old man. "You mean the Niss?"

The old eyes were bright. "That's who I mean; but don't you worry, boy; we'll take care of them—"

"That's careless talk, grandad. The Syndarch frowns on unfriendly remarks about our honored guests." Vallant opened the door. "You'd better come inside."

In Vallant's flat, the old man stared around. "Strange, Ame . . ." he shook his head. "But I've got no time now to waste thinking about that. There's things we've got to do . . ." He fumbled in his coat. "I need help . . ."

"If you're a former Navy man, the Society will take care of you," Vallant said.

"Not money; I've got all that I need." He took out a much-folded paper, opened it with shaking hands, handed it across to Vallant. It was a map, creased and patched, grimy and oil-spattered. The legend in the corner read:

TERRESTRIAL SPACE ARM —POLAR PROJECTION. Sol IX March 2212.

The old man leaned, pointing. "See this spot right here? A river cuts through the mountains—a river of liquid nitrogen. The gorge is a thousand feet deep—and the falls come thundering down out of the sky like the end of the world. That's the place, Ame. They'd kill to get it, make no mistake—and that'd be only the beginning."

"Who'd kill?"

"The sneaking, filthy, Niss, boy—who else?" the old man's voice snapped with an echo of youthful authority. "They trailed me in, of course. You heard about the stolen Survey boat?"

Vallant frowned. "You mean the one that disappeared on Pluto?"

The ancient head nodded quickly. "That's right, that was me. Lucky, them coming down like they did. Otherwise, I'd have had another thirty-odd years to

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wait. Might not of made it. I figured to lose them but I'm getting old; not as sharp as I used to be. I killed one an hour ago. Don't know how long I've got—"

"You *killed* a Niss?"

"Not the first one, either." The old man's toothless grin was cheerful. "Now, what I have to tell you, Ame—"

"Look . . ." Vallant's voice was low. "I won't turn you in—but you can't stay here. God knows I have no use for the Niss, but killing one—"

The old man looked into Vallant's face, searchingly. "You *are* Amory Vallant . . ?"

"That's right. I don't know how you know my name, but—"

"Look here, Ame. I know it's hard to understand. And I guess I wander; getting old . . ." He fumbled over his pockets, brought out a warped packet, paper-wrapped, passed it over to Vallant.

"Go ahead—take a look."

VALLANT unfolded the wrappings, took out a once-glossy tri-D photo. It showed a line of men in regulation ship-suits standing against a curving wall of metal. The next was a shot of a group of boyish-faced men in identical Aerospace blue blouses, sitting at a long table, forks raised toward mouths. In another, two men stood on a stormy hillside scattered with the smoking fragment of a wrecked ship.

Vallant looked up, puzzled. "What—"

"Look closer, Ame. Look at the faces." The old man's bony finger reached, indicated a man in a worn uniform, looking down at torn metal. He had a lean face, short-cropped sandy hair, deep-set eyes—

"Hey!" Vallant said. "That looks like me!"

"Uh-huh. In the other ones, too . . ." The old man crouched forward, watching Vallant's face as he shuffled through the pictures. There he was—standing on the bridge of a capital ship, clip-board in hand; leaning on a bar, holding a glass, an arm over the shoulders of a square-faced red-headed man; posing stiffly before a bazaar stall manned by a sullen Niss with his race's unfortunate expression of permanent guilt stamped on the grey-green features.

Vallant stared at the old man. "I've never been in the Navy—I never saw the inside of a ship of the line—I was never on the Niss-world . . !" He flipped through the remaining pictures. "Here's one where I've got grey hair and a commodore's star! How the devil did you fake these up, old-timer?"

"They're no fakes, Ame. Look there—that red-headed young fellow—do you know him?"

Vallant studied the picture. "I

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have a friend named Able; Jason Able—at Unitech; we're both students there. This looks like him—only older."

The old man was nodding, grinning. "That's right, Ame. Jase Able." The grin faded abruptly. "But I didn't come here to talk about old times—"

"Is he a relative of yours?"

"Not exactly. Listen; My boat; they got it. Didn't have time to camouflage it like I planned. It's at the Granyauck Navy Yard now: I saw it yesterday. We've got to have that boat, Ame; it's the fastest model there is—you know how to handle her?"

"I guess so—I'm an Astronautics major. But hold on a minute. How do you know me? And where did you get those pictures? What's the map all about? Why did you kill a Niss—and what's this about a boat? You know the Syndarch outlawed private space travel thirty years ago . . !"

"Hold on, Ame . . ." The old man wiped a trembling hand across his forehead. "I guess I'm going too fast—but I have to hurry. There's no time—"

"Start with the boat. Are you saying you stole it and came here from Pluto?"

"That's right, Ame. I—"

"That's impossible. Nobody could stay alive on Pluto. And anyway the Patrol or the Niss would stop any ship—"

"It's the same thing; the Syndarch is just the traitors that made peace with the Niss after the War—"

"War?"

"You don't even know about the War, do you?" The old man looked confused. "So much to tell, Ame—and no time. We've got to hurry. The War—not much of a fight to it; it was maybe thirty years ago; our ships were just starting their probes out beyond Big Jupe. The Niss hit us; rolled us up like a rug. What the Hell, we didn't have a chance; our ships were nothing but labs, experimental models, unarmed. The Niss offered a deal. Ramo took 'em up on it. The public never even knew. Now the Niss have occupied Earth for twenty-five years—"

"Occupied! But . . . they're supposed to be our honored guests—

"That's the Syndarch line. As for why I came back, I had to, Ame. I had to tell you about Galliale and the Portal—"

"Slow down, old fellow; start at the beginning—"

"I could have stayed . . ." the old man's eyes were distant, the present forgotten. "But I couldn't chance it . . ." he seemed to pull himself together with an effort. "And anyway, I kind of missed the old life; there's no place for ship-boots in fairyland."

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THERE was a buzz from the front entry. The old man struggled to his feet, stared around the room, his lips working. "They're here already. I thought I'd thrown 'em off; I thought I was clear . . ."

"Hold on, old timer; it's probably just a friend; sit down—"

"Any back way out of here, Ame?" The old man's eyes were desperate. From the door, the buzz sounded insistently.

"You think it's the police?"

"It's them or the Niss. I know, boy."

Vallant hesitated a moment, then went quickly to the bedroom, into the closet, felt over the wall. A panel dropped, fell outward; a framed opening showed dark beyond it.

"I discovered this when they were doing some work on the other side; it's one advantage of cracker-box construction. I phoned in a complaint, but they never fixed it. It opens into a utility room in the Municipal Admin block."

The old man hurried forward. "I'm sorry I got you into this, Ame. I won't come here again—you come to my place—the Stellar Castle on 900th—room 1196b. I've been away two days now. I've got to get back—Don't tell 'em anything—and be sure you're not followed. I'll be waiting." He ducked through the opening.

From the next room, there was the sound of heavy pounding—then of splintering plastic. Vallant hastily clipped the panel back in place, turned as a thick, dark man with an egg-bald head slammed through the doorway. He wore tight-cuffed black trousers and there was a bright-metal servitude bracelet with a Syndarch escutcheon on his left wrist. His small, coal-black eyes darted around the room.

"Where's the old man?" he rapped out in a voice like bullets hitting a plank.

"Who are you? What's the idea of smashing my door?"

"You know the penalty for aiding a traitor to the Syndarch?" The intruder went past Vallant, stared around the room.

"There's nobody here," Vallant said. "And even the Syndarch has no right to search without a warrant."

The bald man eyed Vallant.

"You telling me what rights the Syndarch's got? He barked a short laugh, cut it off suddenly to glare coldly at Vallant.

"Watch your step. We'll be watching you now." Beyond the door, Vallant caught a glimpse of a dull Niss face.

"That reminds me," he said. "The Niss owe me a Tri-D set; one of them smashed mine today."

The beady eyes bored into him. "Yeah," the Syndarch man said. "We'll be watching you." He

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stepped past the smashed door.

As soon as he was gone, Vallant went to the closet and removed the panel.

2

VALLANT stepped through the opening, fitted the panel back in place, felt his way past brooms and cans of cleaning compound, eased the door open, emerged into a dim-lit corridor. Lights showed behind a few doors along its shadowy length. He went toward a red exit light; a lone maintenance man shot him a sour look but said nothing. He pushed out through a rotating door onto the littered walkaway, went to a nearby lift, rode up to the fifty level, took the cross-town walkaway to the shabby section near the Gendye Tower. Here, near the center of the city, there were a few pedestrians out; a steady humming filled the air from the wheelways above. Between them, Vallant caught a glimpse of a bleary moon gleaming unnoticed in the remote sky.

It took Vallant half an hour to find the dark sideway where a dowdy plastic front adorned with a tarnished sunburst huddled between later, taller structures whose lower levels were darkened by the blight that washed about the bases of the city's towers like an overflowing sewer. Vallant stepped through a wide glass door that opened creakily before him, crossed to the dust-grimed directory, keyed the index; out-of-focus print flickered on the screen. Jason Able was registered in room 1196b.

Vallant stepped into the ancient mechanical lift; its door closed tiredly. Everything about the Stellar Castle seemed ready to sigh and give up.

On the hundred and tenth floor he stepped out, followed arrows to a warped plastic door against which dull flourescent numerals gleamed faintly. He tapped; the door swung inward. He stepped inside.

It was a mean, narrow room with one crowded, dirt-glazed window, opening on an air-shaft through which the bleak light of a polyarc filtered. There was a bunk bed, unmade, a wall locker with its door ajar, its shelves empty, and beyond, a tiny toilet cubicle. A hinge-sprung suitcase lay near the bed; next to it, the single chair lay overturned. Vallant rounded the bed. The old man lay on his back on the floor. The waxy face, thin-nosed, sunken-cheeked, stared up at him with eyes as remote as a statue of Pharoah.

Vallant touched the bony wrist; it was cool and inert as modelling clay. The packet of pictures lay scattered on the floor. Vallant felt inside the coat; the map was gone. He went to the

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locker; there was a covered birdcage on its floor among curls of dust, a small leather case beside it. He checked the suitcase; it contained worn garments of strange cut, a leather folder with six miniature medals, a few more edge-crimped photos, a toy crossbow, beautifully made, and a Browning 2 mm needler.

A tiny sound brought Vallant upright; he reached for the needler, searching the gloom. From somewhere above him, a soft scraping sounded. Among the shadows under the ceiling, two tiny amber lights glinted; something small and dark moved. Vallant flipped the pistol's safety off—

A shape no bigger than a cat dropped to the bed with an almost noiseless thump.

"You are Jason's friend," a piping voice said. "Did you come to help me?"

3

IT was almost man-shaped, with large eyes which threw back crimson highlights, oversized fox-like ears, a sharp nose; it wore form-fitting clothing of a dark olive color which accentuated its thin limbs and knobby joints. Dark hair grew to a widow's peak on its forehead.

"What are you?" Vallant's voice was a hoarse whisper.

"I'm Jimper." The tiny voice was like the peeping of a chick. "The Not-men came. Jason is dead; now who will help Jimper?" The little creature moved toward Vallant. There was a jaunty cap on the doll-sized head; a broken feather trailed from it.

"Who killed the old man?"

"Are you his friend?"

"He seemed to think so."

"There was a large man—great in the belly, and with splendid clothes, though he smelled of burning drug-weed. Two of the Not-men were with him. They struck Jason a mighty blow, and afterward they took things from his clothes. I was afraid; I hid among the rafters."

"What are you—a pet?"

The little creature stood straighter.

"I am the Ambassador of the king. I came with Jason to see the king of the Giants."

Vallant pocketed the gun. I've been to a lot of places; I never saw anything like you before. Where did you come from?"

"My land of Galliale lies beyond the Place of Blue Ice—the world you know as Pluto."

"Pluto? Out there the atmosphere falls as snow every winter. Nothing could live there."

"Green and fair lies Galliale beyond the ice." The little figure crept closer to the foot of the bed. "Jason is dead. Now Jimper is alone. Let me stay with you, Jason's friend."

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"Sorry, I don't need a pet."

"I am the Ambassador of the King!" the mannikin piped. "Do not leave me alone," he added, his tiny voice no more than a cricket's chirp.

"Do you know why they killed the old man?"

"He knew of the Portal—and my land of Galliale. Long have the Not-men sought it—"

The tiny head came up suddenly; the long nose twitched. "The Not-men," the bird voice shrilled. "They come . . !"

Vallant stepped to the door, listened. "I don't hear anything."

"They come—from below. Three of them, and evil are their thoughts."

"You're a mind-reader, too?"

"I feel the shapes of their intentions . . ." the tiny voice was frantic. "Flee, Jason's friend; they wish you harm . . ."

"What about you?"

"Jason made a carrying box for me—there—in the locker."

Vallant grabbed up the cage, put it on the bed; the Ambassador of the king crept inside.

"My cross-bow," he called; "it lies in Jason's box; and my knapsack."

Vallant retrieved the miniature weapon and the box, handed them in to their owner.

"All right, Jimper. I'm not sure I'm not dreaming you—but I'd hate to wake up and find out I wasn't."

"Close are they now," the small voice shrilled. "They come from there . . ." He pointed along the gloomy hallway. Vallant went in the opposite direction. He glanced back from the first cross-corridor; three Niss stepped from the elevator; he watched as they went to the room he had just left, pushed inside.

"It looks as though you know what you're talking about, Jimper," Vallant said. "Let's get away from here before the excitement begins."

4

THERE were a scattering of late-shift workers hurrying through the corridor when Vallant reached the secret entry to his flat. He waited until they had hustled out of sight, then opened the utility room door, stepped inside. In the cage, Jimper moaned softly.

"The Feared Men," he peepd.

Vallant stood stock-still. He put his ear against the removable panel. A heavy voice sounded from beyond it.

"How did I know he'd die so easy? I had to make him talk, didn't I?"

"Fool!" hissed a voice like gas escaping under pressure. "Little will he talk now."

"Look, your boss isn't going to blame me, is he?"

"You will die, and I with you."

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"Huh? You mean—just because—"

There was a sudden hiss, then a sound of rattling paper. "Perhaps this will save our lives," the Niss voice said. "The map . . !"

In the cage, Jimper whined. "I fear the Not-men," he piped. "I fear the smell of hate."

Vallant raised the cage to eye-level. The little creature inside blinked large, anxious eyes at him. "They found the old man's map," he said. "He had it in his pocket. Was it important?"

"The map? Jimper stood, gripping the bars of the cage. "Vallant—with the map they can seek out my Land of Galliale, and fall upon us, unsuspecting! They must not have it!"

"They've already got it—and if I'd walked in the front door, they'd have had me too. I'm in trouble, Jimper. I've got to get away, hide out somewhere . . .

"First, the map, Vallant!"

"What do you mean?"

"We must take it from them. You are a giant, like them; can you not burst in and take it from them?"

"I'm afraid heroics are out of my line, Jimper. Sorry, but—"

"Jason died for the map, Vallant. He came to warn you, and they killed him. Will you let them take it now?"

Vallant rubbed his jaw. "I've gotten mixed up in something I don't understand. I don't know the old man; he never got around to saying why he came to see me—"

"To save a world, Vallant—perhaps a Galaxy. And now only you can help!"

"The map is that important, is it?"

"More than you could know! You must make a plan, Vallant!"

Vallant nodded. "I guess my number's up anyway; I'd never get clear of the city, with the Syndarch and the Niss after me. I might as well go down fighting." He chewed his lip. "Listen, Jimper. I want you to sneak around front, with my key. You can reach the key-hole if you climb up on the railing. When you plug it in, the buzzer will go. Then I'll move in and hit them on the flank. Maybe I can put it over. Can you do it?"

Jimper looked out through the brass bars of the birdcage. "It is a fearsome thing to walk abroad among the giants . . ." He gripped his five-inch cross-bow. "But if you ask it, Vallant, I will try."

"Good boy." Vallant put the cage on the floor, opened it. Jimper stepped out, stood looking up at the man. Briefly, Vallant described the location of his apartment entry; he handed over the electro-key.

"Be careful; there may be somebody watching the place from outside. If you make it, give it one good blast and run like

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hell; I'll meet you back here. If I don't show up in ten minutes, you're on your own."

Jimper stood straight; he settled his cap on his head.

"I am the Ambassador of the King," he said. "I shall do my best, Vallant."

VALLANT waited, his ear to the thin panel. The two who lay in wait inside conversed excitedly, in low tones.

"Look," the man said. "The guy's wise we're after him. He won't come back here; we've got to get the map to the Syndarch —"

"To the Uttermagnate!"

"The Syndarch's *my* boss—"

"He is as the dirt beneath the talons of the Uttermagnate!"

Faintly, the door buzzer sounded. The voices ceased abruptly. Then:

"OK, you cover him as he comes in; I clip him back of the ear . . ."

Vallant waited a quarter of a minute; then he pushed on the panel, caught it as it leaned into the room, stepped in after it, the gun in his hand. He crossed quickly to the connecting doorway to the outer room. The man and the Niss stood across the room on either side of the entry, heads cocked alertly; the alien held a gun, the man a heavy sap.

"Don't move!" Vallant snapped.

The two whirled on him like clockwork soldiers. Vallant jumped aside, fired as the Niss burned the door-frame by his ear. The Browning snarled; the alien slammed back, fell, a cluster of needles bright against the leathery hide. The man dropped the length of weighted hose, raised his hands.

"Don't shoot . . !" he choked. Vallant went to him, lifted the map from his pocket.

"Talk fast!" Vallant snapped. "Who's the old man?"

"All I know is," the man stuttered, "the Niss boss said bring the old guy in."

"You tailed him here, but he lost you. How'd you get to him?"

"There was four teams working him. Mullo picked him up on One Level."

"Why'd you kill him?"

"It was an accident—"

"Why'd you come back for me?"

"Once the old guy was dead, you was the only lead . . ."

"Lead to what?"

Sweat popped out on the man's veined temples. He had a narrow, horsey face, a long torso with too-short legs.

"I . . . dunno. It was something they wanted."

"You take orders from . . . those?" Vallant glanced at the dead Niss.

"I do like I'm told," the man said sullenly.

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"You know any prayers?"

The man's face broke like smoke in a gust of wind. He fell to his knees, clasped his hands in a grotesque parody of adoration. He babbled. Vallant stood over him.

"I ought to kill you—for my own protection," he said. "But that's where you skunks have the advantage . . ." He hit the man hard behind the ear with the gun-butt; he fell on his face. Vallant trussed him with a maroon bath-robe cord, knotted a handkerchief over his mouth, then rose, looked around at the laden book shelves, the music storage unit, the well-stocked pantry beyond.

"It was nice while it lasted," he muttered. He went to the closet, stepped through into the dark room beyond.

"Jimper!" he called. There was no answer. The cage was empty, the tiny knapsack beside it. He picked it up, stepped out into the corridor, went to the exit, out into the walkaway, turned back toward the entrance to the apartment block.

AS he passed the dark mouth of a narrow service-way, a sudden thump! sounded, followed by a squeal like a rusty hinge. Vallant whirled; a giant rat lay kicking long-toed hind feet, a three inch length of wooden dowel projecting from its chest. Beyond it lay a second rat, its yellow chisel-teeth closed on a shaft which had entered its mouth and emerged under its left shoulder. Vallant took a step into the alley; a foot-long rodent darted at him. He pivoted, swung a foot, sent it thudding against the wall, whirled in time to see Jimper, his back to the wall, loose a bolt from his bow, then toss the weapon aside and draw a two-inch dagger. A red-eyed rodent rushed him; he danced aside, struck—

Vallant snatched him up, aimed a kick at the predator, quickly retreated to the dim-lit walkaway.

"I'm sorry, Jimper; I forgot about the rats . . ."

"My . . . bow . . ." Jimper keened. His head drooped sideways. Vallent was suddenly aware of the lightness of the small body; there seemed to be only bones under the silken-soft garments.

"How long since you've had a meal?"

"Jason gave Jimper food . . . before he went away . . ."

"You mean you waited there two days, in the dark, without food and water?"

Jimper stirred, tried to raise his head. "Jimper is tired . . ."

The elfin face was greyish, the eyes hollow.

"You've had a tough time, partner."

Vallant walked back up the alley, recovered the cross-bow. The

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rats were gone—even the two dead ones. dragged away by their fellows.

"I'll get you some food," Vallant said; "then maybe you can tell me what this is all about."

"Then . . . you will help Jimper?"

"I don't know, Jimper. I just killed a Niss, and gave a Syndarch man a severe headache. I'm afraid I've permanently spoiled my popularity in this area. I have a couple of hours maybe before they find them. That means I'll have to make some very hurried travel arrangements. Afterwards we can discuss future plans—if we still have any."

5

VALLANT stood in the angle of the security wall surrounding the Navy Yard, sheltered from the glare of the polyarcs. "Do you know which one it is?" he whispered.

"Well I know her, Vallant; a fleet vessel; none can match her."

"Point her out to me." He lifted the cage to a shed roof, scrambled up beside it. Over the wall-top, the lights threw back dull highlights from the tarnished hulls of three Syndarch hundred-tonners squatting in an irregular row. Beyond, half a dozen of the Syndarch's private racing stable were parked, their peeling decorative paint giving them a raffish air. Far to the right, Jimper pointed to a smaller vessel, agleam with chromalloy and enamel, glistening under the polyarcs. Men worked around it; nearby stood four armed men in the pale green of the Syndarch contract police.

"I'll have to take some chances now," Vallant said softly. "You'd better stay here; I won't be able to look out for you."

"I will look out for myself. Vallant!"

"All right, partner; but this will be risky."

"What will you do, Vallant?" Jimper's voice was a mouse's squeak, but he stood with a bold stance, looking up at Vallant.

"I'm going to waltz into Operations as though I owned a controlling interest, and see what happens. Keep your fingers crossed."

"Jimper will be near, Vallant. Good luck."

Vallant stooped, put out a hand. "Thanks, partner—and if I don't make it, good luck to you—and your land of Galliale." Jimper laid his tiny hand solemnly against Vallant's palm.

"Stout heart," he piped, "and fair hunting."

VALLANT strode through the gate, walking briskly like a man intent on serious business. A Niss eyed him from a sentry box by the gate as he rounded the

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end of a building, went up steps, pushed through wide doors, went along a carpeted corridor and under an archway into a bright room with chart-lined walls. A fat man with a high, pink forehead looked up from behind a counter, glanced at Vallant, let his bored gaze wander past. Vallant rapped smartly on the counter.

"A little service here, please, my man. I need a clearance order; I'm taking a boat out."

The fat man's eyes flicked back to Vallant. He plucked a plastic toothpick from a breast pocket, plied it on large, square teeth. "So who're you?" he inquired in an unoiled tenor.

"I'm the Syndarch's new pilot," Vallant said coldly. He wiped a finger across the dusty counter, examined its tip distastefully. "I trust that meets with your approval?"

There was an extended silence, broken only by the click of the fat man's toothpick.

"Nobody never tells me nothing," he stated abruptly. He turned, plucked a paper from a desk behind him, scribbled on it, tossed it at Vallant.

"Where's old man Ramo going this time?"

Vallant looked at him sharply. "Mind your tone, my man."

The toothpick fell with a tiny clatter. The fat man's face was suddenly strained. "Hey, I din't mean nothing. I'm loyal, you bet." He indicated himself with an ink-stained thumb. "I just got kind of a ha ha informal way of talking."

"What was that lift-off time again?" Vallant said briskly.

"Plenty time yet, sir." The squeaky voice was half an octave higher. "I wasn't expecting the pilot in fer half a hour yet. I got my paper-work all set early, just in case, like. All you got to do, you got to sign the flight plan." The man pointed with the blue thumb. Vallant scribbled *Mort Furd* in the indicated space, folded his copy and tucked it away.

"About that crack," the fat man started.

"I'm giving you the benefit of the doubt," Vallant said.

OUTSIDE, Vallant walked quickly across to the low shed under the glare sign reading EQUIPMENT—STATION PERSONNEL ONLY. Inside, a small man with lined brown skin and artificial-looking black hair looked at him over a well-thumbed picto-news.

"I want to draw my gear," Vallant said briskly. "I'm taking the new boat out in a few minutes."

The little man got to his feet, held out a hand expectantly.

"Let's see that Issue Order."

"I'm running late," Vallant said. "I haven't got one."

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The little man sat down and snatched up his paper. "Come back when you got one," he snapped.

"You wouldn't want to be the cause of delaying Leader Ramo's departure, would you?" Vallant looked at him pointedly.

"I do my job; no tickee no washee." The little man turned a page, appeared absorbed in his reading.

"Hey," Vallant said. The man glanced up, jaw lowered for a snappy retort. He saw the gun in Vallant's hand, froze, mouth open. Vallant plucked a length of wire from the table, tossed it to him. "Use this to tie your ankles together," he ordered. The magazine fell to the floor as the man complied. Vallant went behind him, cinched his hands with another length of stranded copper. He went along the bins, picked out a vacuum suit, pulled it on over his street clothes. He added an emergency power pack, a field communicator, emergency rations, a recycler unit.

Vallant stepped from the door —and was face to face with a heavily-built Niss holding a gun like the one Vallant had first seen at the hip of the alien who had smashed his Tri-D set.

"Would you mind pointing that thing in some other direction?" Vallant started to edge past the alien. It hissed, jabbed the strange gun at him.

Vallant took a deep breath, wondering how fast Niss reflexes were.

"Perhaps I'd better explain," he started—

There was a sharp clatter behind the alien; the narrow head jerked around; Vallant took a step, hit the creature on the side of the head; it bounced backwards, went down hard on its back; the gun skidded away. Vallant jumped to the Niss, caught it by the harness, dragged it into the shadow of the shed. Jimper stepped into view.

"Well smote, Vallant!" he chirped.

Your timing was perfect, partner!" Vallant looked toward the lighted ship. The ground crew was still at work, the guards lounging nearby.

"Here we go; make a wide swing. Wait until they're all admiring me, and then run for it." Vallant started across the open ramp with a long stride. A man with a clip-board strolled forward to meet him. Vallant flapped the Clearance Order at him.

"All set to lift?" he barked.

"Eh? Why, no; I haven't even run idling checks—" the man backed, keeping pace.

"Skip 'em; I'm in a hurry." Vallant brushed past, reached the access ladder, thumbed the lock control; it cycled open. A small figure bounded from shad-

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ow, leaped up, disappeared inside.

"Hey—"

"Clear the area; I'm lifting!" Vallant went up, swung through the open port, clanged it behind him, climbed up into the dim-lit control compartment, slid into the deep-padded acceleration couch, threw the shock frame in place.

"Get on the bunk, Jimper," he called. "Lie flat and hang on." He slammed switches. Pumps sprang into action; a whining built, merged with the rumble of preheat burners. The communicator light blinked garish red on the panel.

"You in the yacht," a harsh voice blared. "Furd, or whatever your name is—"

A Niagara of sound cut off the voice. The pressure of full emergency power crushed Vallant back in the seat. On the screen, the pattern of lights that was the port dwindled, became a smudge, then glided from view as the ship angled east, driving for Deep Space.

"We're clear, Jimper," Vallant called. "Now all we have to do is figure out where we're going . . ."

6

MARS was a huge, glaring disk of mottled pink, crumbling at the edge into blackness. It lit Jimper's face eerily as he perched on the edge of the chart table, watching the planet swing ponderously past on the screen.

"Not this world, Vallant!" Jimper piped again. "Jason came with me from the world of the Blue Ice—"

"You said your country was warm and green, Jimper; with a big orange sun. Let's be realistic: Pluto is only a few degrees above absolute zero. Wherever this Galliale is, it couldn't be out there."

"You must believe Jimper, Vallant." The little creature looked appealingly across at the man. "We must go to Pluto!"

"Jimper, we need supplies, information. We'll land at Aresport, rest up, take in some of the scenery I've heard about, then see what we can find out about the old man's itinerary—"

"The Not-men will capture us!"

"Jimper, we couldn't be that important. Mars is an autonomous planet. I know commerce has been shut off for years, but the Syndarch couldn't have any influence out here—"

"Vallant—the Not-men own all the worlds! There are no Giants but those who serve them—but for those on Earth—and why they let them live, I cannot say —"

"You've got a lot of wild ideas, Jimper—"

"Look!" Jimper's finger point-

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ed at the screen. A black point was visible, drifting across the center of the planetary disc. Vallant adjusted a control, locked a tracking beam on the vessel.

"If he holds that course, we're going to scrape paint . . !" He keyed the communicator. "*Ariane* to Mars Tower West; I'm in my final approach pattern; request you clear the Sunday drivers out of the way."

"Pintail Red to Pintail One," a faint voice came from the speaker. "I think I've picked up our bogie; homing in on 23—268—6, sixteen kiloknots . . ."

"Pintail Red, get off the clear channel, you damned fool—" The angry voice dissolved into a blur of scrambled transmission.

"Panam Patrol—out here?" Vallant twiddled controls, frowning at the instruments. "What was that course? 23—268—6 . . ." He flipped a switch, read off the numerals which glowed on the ground glass.

"Hey, Jimper—that's us they're talking about . . !"

A speck separated itself from the vessel on the screen, raced toward *Araine*.

"Hang on to your hat, Jimper," Vallant called. "He means business . . ." He slammed the drive control lever full over; the ship leaped forward.

"I guess the Ares Pavilion's out, Jimper," he said between clenched teeth, "but maybe we can find a cosy little family-type hotel on Ganymede."

7

VALLANT sagged over the control panel, his unshaven face hollow from the last week on short rations.

"Ariane to Ganymede Control," he croaked for the hundredth time. Ganymede Control, come in . . ."

"None will answer, Vallant," Jimper piped.

"Looks like nobody home, buddy," Vallant slumped back in the couch. "I don't understand it . . ."

"Will we go to Pluto now, Vallant?"

"You don't give up easily, do you, partner?"

Jimper sprang across, stood before Vallant, his feet planted on dial faces. "Vallant, my Land of Galliale lies beyond the snows, deep among the Blue Ice mountains. You must believe Jimper!"

"We're low on rations and my fuel banks were never intended for this kind of high-G running, weeks on end. We'll have to turn back."

"Turn back to what, Vallant? The Not-men will surely slay you —and what will happen to Jimper?"

"There's nothing out there, Jimper!" Vallant waved a hand at the screen that reflected the

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blackness of space, and the cold glitter of the distant stars. "Nothing but some big balls of ice called Uranus and Neptune, and the sun's just a bright star."

"There is Pluto."

"So there is . . ." Vallant raised his head, looked into the small, anxious face. "Where could this nice warm place of yours be, Jimper? Underground?"

"The sky of Galliale is wide and blue, Vallant, and graced with a golden sun."

"If I headed out that way—and failed to find Galliale—that would be the end. You know that, don't you?"

"I know, Vallant. I will not lead you awrong."

"The old man said something about mountains of ice; maybe —" Vallant straightened. "Well, there's nothing to go back to. I've always had a yen to see what's out there. Let's go take a look, Jimper. Maybe there are still a few undreamed of things in Heaven and Earth—or beyond them."

8

THE planet hung like a dull-steel ball against the black; a brilliant highlight threw back the glinting reflection of the tiny disc that was the distant sun.

"All right, Jimper, guide me in," Vallant said hoarsely. "It all looks the same to me."

"When we are close, then I will know," Jimper's pointed nose seemed to quiver with eagerness as he stared into the screen. "Soon you will see, Vallant. Fair is my land of Galliale."

"I must be crazy to use my last few ounces of reaction mass to land on that," Vallant croaked. "But it's too late now to change my mind."

For the next hours, Vallant nursed the ship along, dropping closer to the icy world. Now plains of shattered ice-slabs stretched endlessly below, rising at intervals into jagged peaks gleaming metallically in light as eerie as an eclipse.

"There!" Jimper piped, pointing. "The Mountains of Blue Ice . . !" Vallant saw the peaks then, rising deep blue in a saw-tooth silhouette against the unending snow.

The proximity alarm clattered. Vallant pushed himself upright, read dials, adjusted the rear screen magnification. The squarish lines of a strange vessel appeared, dancing in the center of the field. Beyond, a second ship was a tiny point of reflected light.

"We're out of luck, partner," Vallant said flatly. "They must want us pretty badly."

"Make for the mountains, Vallant!" Jimper shrilled. "We can yet escape the Not-men!"

Vallant pulled himself togeth-

(continued on page 98

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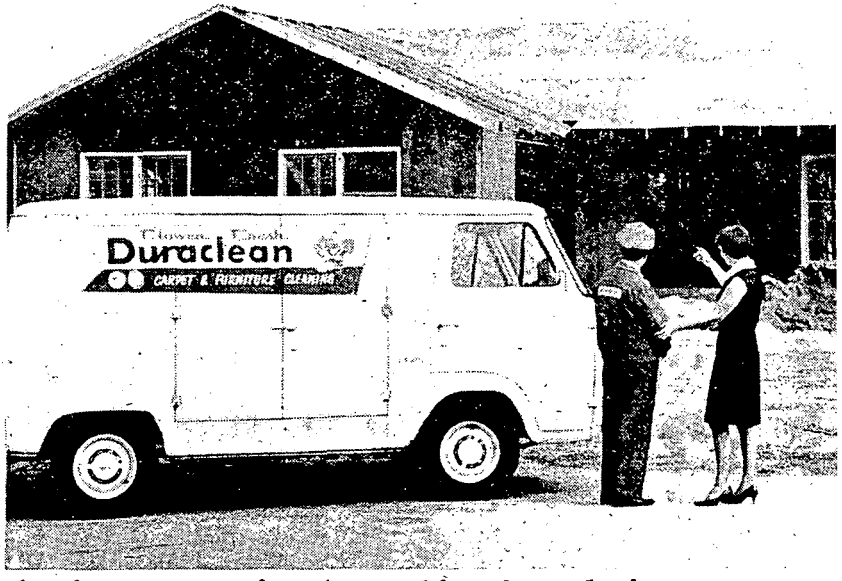

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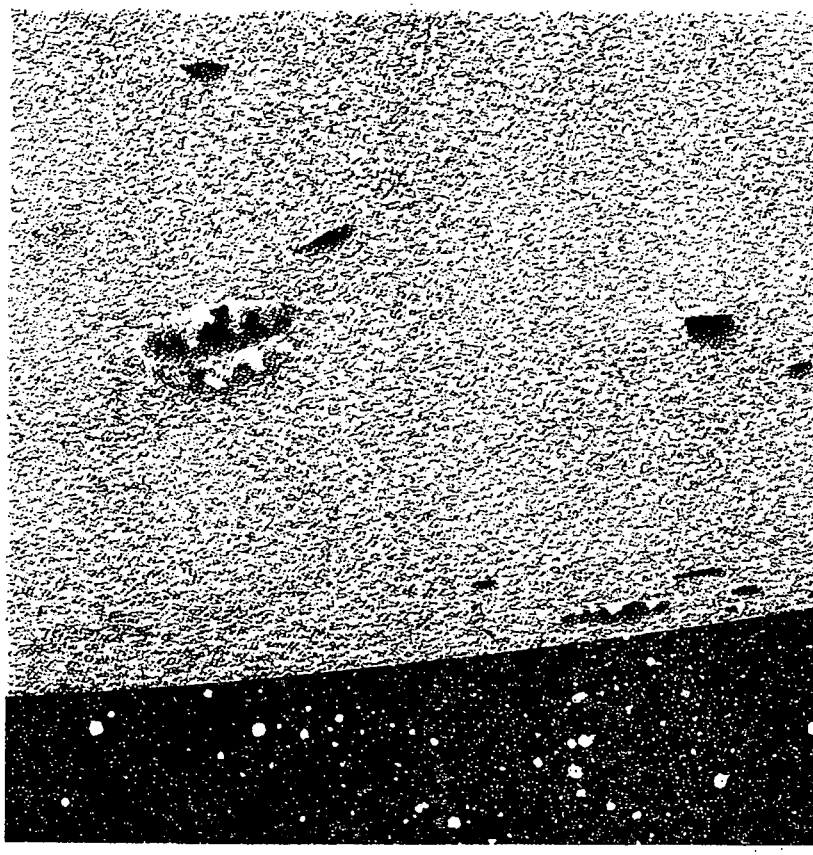

The Deep Space Scrolls

By ROBERT F. YOUNG

Illustrated by SCHELLING

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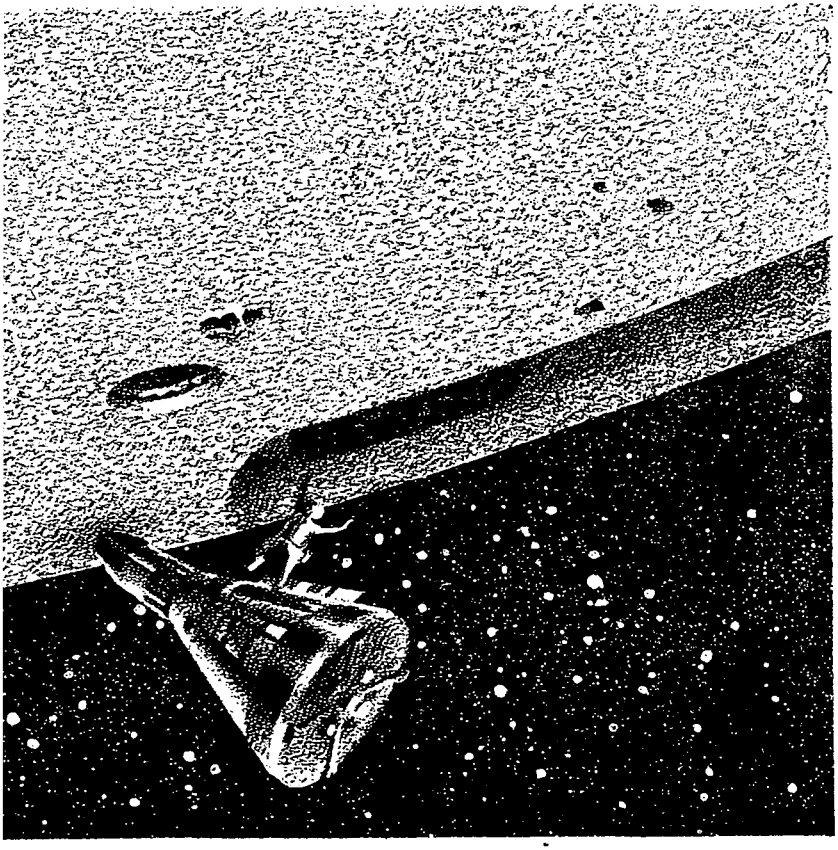

Robert F. Young, who has so felicitously mined the fields of mythology for sf themes, poses a question about one of our most basic racial memories—and about the nature of our concept of God.

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Following is a transcript of the closed hearing conducted June 18, 1969 by the Special Senate Committee to Survey Space Progress. Committee chairman: Senator Larch. Committee members in attendance: Senators Kuell, Nicholson, and Hewlett Witness: Lieutenant Colonel Willard S. Greaves, companion-pilot of the Camaraderie 17.

TRANSCRIPTS:

SEN. LARCH: Before getting down to the business on hand, Colonel Greaves, I would like to congratulate you on behalf of my colleagues and myself on your participation in last week's successful orbital flight of the *Camaraderie 17*. Yours and Commander Perkins' achievement stands out as a glowing landmark on the perilous path which this country is blazing into space. Also, I would like to point out to you that the governing principle behind this committee since its inception one year and three months ago has not been to bury astronauts but to praise them, and that the present investigation is not intended to cast umbrage upon your integrity but to clarify certain aspects of your experience that both we and the public-at-large have found confusing. Now, to proceed: You and Commander Perkins lifted out of New Canaveral in the supercapsule *Camaraderie 17* at 0659 hours on the tenth of June, 1969, and began a three-orbit flight the apogee of which was approximately 1,400 miles, the perigee of which was approximately 1,290 miles, and the purpose of which was to test your reactions to deep space—that is, space beyond the perimeter of the orbital flights thus far undertaken—preparatory to the launching of the first manned moon-vehicle. Is that correct, Colonel Greaves?

LT. COL. GREAVES: That is correct.

SEN. LARCH: Exactly when and where during this three-orbit flight did you and Commander Perkins first sight the ghost ship, colonel?

SEN. HEWLETT: May I interpose a word at this point, Senator Larch?

SEN. LARCH: Please do so, Senator Hewlett.

SEN. HEWLETT: Thank you. It is my opinion, senator, that in referring to the ship boarded by Colonel Greaves as a 'ghost ship' we are lending too large an ear to the somewhat sensational nomenclature with which the press has discolored the incident, and are peradventure implying official sanction to irresponsible reporting. Therefore, I recommend that in the future, or until such time as evidence justifies a more specific appellation, we allude to the

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object in question by the designation first accorded it by the officials at New Canaveral: 'Spaceship X'.

SEN. LARCH: Very well, senator. I will repeat the question: Exactly when and where during this three-orbit flight, Colonel Greaves, did you and Commander Perkins first sight Spaceship X?

LT. COL. GREAVES: On the first pass, just after we reported in to central control via the Australian relay station. In accordance with instructions, Perk—Commander Perkins, that is—had taken the capsule off automatic attitude control and begun an experimental series of rolls, pitches, and yaws on manual control. We had no idea of the—of Spaceship X's presence till it appeared suddenly upon the periscope screen. Instantly Perk stabilized the capsule in its present attitude and began making the minute attitudinal adjustments necessary to keep the image on the screen.

SEN. LARCH: What was the position of the ship with relation to the *Camaraderie 17?*

LT. COL. GREAVES: It was about half a mile 'above' and behind us, and slightly to the north of our trajectory. We saw at once that it was gradually overtaking us and that we were gradually rising to meet it.

SEN. LARCH: And the implications of these factors were?—

LT. COL. GREAVES: That Spaceship X was traveling at a greater velocity than the *Camaraderie 17,* and that its orbit considerably exceeded our own. However, owing to the eccentricity of our orbit, the two trajectories were approaching, and would parallel each other before, during, and slightly after apogee, during which time the two spacecraft would be close enough to each other to permit a boarding attempt.

SEN. LARCH: Will you describe Spaceship X for us, Colonel Greaves?

LT. COL. GREAVES: Yes. It was roughly cylindrical in shape, and constructed of a dead-black, nonreflective metal. Only one viewport was visible to us—a small one just aft of the lock—and this viewport proved to be the only one the ship possessed. Perk and I estimated the vessel's length at about five hundred feet, its breadth at about eighty-five feet, and its depth—as I said, it was only roughly cylindrical—at about fifty feet. In view of later developments, I think it safe to say that these estimates were close to being one-hundred percent correct.

SEN. LARCH: Are you positive that they are your original estimates, colonel? Are you certain that you did not revise them in order to substantiate the conclu-

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sion you arrived at after boarding the vessel?

LT. COL. GREAVES: Those are our original estimates.

SEN. KUELL: Senator, may I have a word?

SEN. LARCH: Please proceed, Senator Kuell.

SEN. KUELL: Colonel Greaves, I'm sure you realize what a grave bearing yours and Commander Perkins' discovery can have upon religious beliefs throughout the world should the conclusion you arrived at prove to be correct. Therefore, I'm sure that you won't take it amiss if I press this matter of dimensions a bit further. Now a cubit, as all of us present are well aware of, represents the length of the human arm from the end of the middle finger to the elbow—a matter of from eighteen to twenty-two inches. We have, in other words, a variation of five inches. Hence three hundred cubits, broken down into feet, varies from four hundred and fifty feet to five hundred and fifty feet; fifty cubits, broken down into feet, varies from seventy-five feet to ninety-one and one half feet; and thirty cubits, broken down into feet, varies from forty-five feet to fifty-five feet. Now, if we calculate the average of each of these sets of figures, we arrive at the following dimensions: length—five hundred feet; breath—eighty-three and one fourth feet; and depth or height—fifty feet. Does it not strike you as being highly significant, Colonel Greaves, that yours and Commander Perkins' estimates should have thus fortuitously approximated—and two cases actually have coincided with—these figures, and isn't it reasonable to assume that you revised your true original estimates so that they would accord with your subsequent theory as to the nature of Spaceship X, and that the actual dimensions of Spaceship X may be altogether different from those which you ascribe to it?

LT. COL. GREAVES: Again, I can only say that the estimates I gave you were our original estimates. We had no need to revise them and we would not have revised them even if the need had arisen.

SEN. KUELL: Then why weren't they radioed back to central control coincidentally with your announcement that you had sighted —and I use your own words— 'what appears to be a spaceship of stupendous proportions'? Why were they withheld until after you had re-boarded the *Camaraderie 17?*

LT. COL. GREAVES: They were not withheld in the sense that you imply. Perk and I simply decided that it would be better to wait until we approached Spaceship X more closely before radioing in a detailed description, but when the time came, we were so

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busy making preparations for boarding that we forgot the matter completely.

SEN. KUELL: Thank you, colonel. Please proceed with your questioning, Senator Larch.

SEN. LARCH: Tell me, Colonel Greaves—why were you and Commander Perkins so determined to board Spaceship X?

LT. COL. GREAVES: Because we knew that this would be our only chance. The difference in the two orbits was such that the forthcoming juxtaposition of the two craft could not occur again for weeks and possibly months and consequently could not occur again at all since our flight was limited to three orbits. In addition, there was the strong possibility that Spaceship X, owing to the nonreflective nature of the metal of which it was constructed, might never be relocated. It had, after all, gone undetected up till now. We felt that the situation had all of the earmarks of a heaven-sent opportunity, and that it would be a shame not to take advantage of it.

SEN. LARCH: Did it not occur to you that the vessel might be an advanced Vostok model of some kind, and that it might be manned?

LT. COL. GREAVES: We knew without even having to discuss the matter that while the Russians would have been capable of building such a ship, launching it with their present boosters would have been out of the question.

SEN. LARCH: But it did occur to you that the vessel might be manned by, shall we say, extraterrestrial intelligences?

LT. COL. GREAVES: Yes it did. As a matter of fact, we were convinced that it must be manned by beings of some sort—until we got close enough to see the meteor holes in the hull. We knew then that while it might once have been manned, it was manned no more—save, perhaps, by dead men. We also knew that in order for it to have suffered that many meteor penetrations, it must have been in space for millennia.

SEN. LARCH: You assumed this latter contingency—isn't that what you mean, colonel? You couldn't possibly have known it for a certainty.

LT. COL. GREAVES: Granted. But later developments bore us out.

SEN. LARCH: Let's get down to those later developments, shall we? Suppose we start from the moment you radioed the news of your discovery back to central control. What did you do then?

LT. COL. GREAVES: We estimated when juxtaposition would occur and how long it would endure, then radioed the information back to central control together with the information that this was the only time during our

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flight that it could occur. Finally we requested permission for one of us to board the other craft.

SEN. LARCH: I understand that you stated that in view of the fact that the ship was unmanned and that its attitude was relatively stable, the danger involved would be negligible. Was this entirely true, colonel?

LT. COL. GREAVES: Entirely. As you know, senator, orbital rendezvous have been achieved many times, both by this country and by the Soviet Union, and in several instances actual transference has taken place. The instance in question seems dangerous merely because the rendezvous was fortuitous rather than planned. Fortuitous or not, however, it posed no unusual problems, and there were two possible means of entry virtually staring us in the face.

SEN. LARCH: During your press interview, you referred to one of these entry points as a 'boat bay'. Will you elaborate further?

LT. COL. GREAVES: Yes. It was a large recessed area in the hull where the auxiliary craft used by the passengers and the crew when they disembarked had been moored. A lock gave onto this area, and I was reasonably certain that I could burn my way into the ship with the small acetylene torch that was part of the *Camaraderie 17's* hardware. This seems a rather naive assumption on my part in the light of the analysis of the fragment of metal I brought back, but I had no way of knowing at the time that the hull, however susceptible it might be to meteors, was utterly impervious in a number of other respects. In any event, as matters turned out I didn't have to use the torch, for the boat-bay lock had been improperly sealed by the last person to disembark.

SEN. NICHOLSON: Senator Larch, I would like to have the floor for a few moments.

SEN. LARCH: Very well, Senator Nicholson.

SEN. NICHOLSON: To return to this sample piece of metal you brought back with you, Colonel Greaves: During your press interview you described it as 'a fragment of gopherwood'. In all honesty, colonel, don't you think that this was a rather flippant and ill-considered remark, and that by making it, you lent undue credence to what was—and is—at best, an exceedingly tenuous theory?

LT. COL. GREAVES: I do not consider the remark to have been either flippant or ill-considered. I was asked what I thought the metal was, and I gave an honest answer. Furthermore, my immediate superiors agree with me. Gopherwood has never been identified, and the term could very well refer to the alloy that went

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into the construction of Spaceship X.

SEN. NICHOLSON: I shudder to think of the blow our international prestige will receive should the scrolls you brought back with you fail to validate your conclusions. Our space program will become the laughingstock of the entire world. I simply cannot understand why greater secrecy was not employed in this matter.

LT. COL. GREAVES: Too much of the story had already been made public through radio and television coverage to make denying it practicable. In any event, I'm certain that the scrolls will provide the necessary proof. According to Dr. Noyes, they contain similarities to one of the early Mediterranean alphabets, and this certainly suggests that the descendants of whoever wrote them must have had something to do with the development of that alphabet.

SEN. LARCH: Do you have any further questions, Senator Nicholson?

SEN. NICHOLSON: Not for the moment—no.

SEN. LARCH: I will proceed then. You and Commander Perkins are of equal rank, Colonel Greaves. May I ask how you ascertained which of you would do the boarding after authorization to do so came through?

LT. COL. GREAVES: Flipping a coin was out of the question of course, and we had no straws or matches. Finally we agreed that since our wives were of similar build and height, each of us would write down his wife's weight on a slip of paper, and that the one of us whose wife weighed the most would do the boarding. We promised to be completely honest about this. I won by a margin of three pounds.

SEN. LARCH: I see. And have you apprised your wife of this . . . ah . . . *modus operandi?*

LT. COL. GREAVES: As a matter of fact, I have not.

SEN. LARCH: A wise decision indeed. And now, colonel, will you tell us what you did and what you found after boarding Spaceship X?

LT. COL. GREAVES: As I mentioned earlier, the boat-bay lock had been improperly sealed. Consequently I had no trouble opening it. The inner boat-bay lock proved to have been improperly sealed also, and I concluded from this that the action in both cases had been deliberate—that Spaceship X had not only been abandoned, but that it had been abandoned in such a way as to make future use of it impossible. After entering the ship proper, I found myself in a short passageway. I floated along it, pulling myself forward by means of this protuberance and that and propelling myself, whenever possible, by

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pushing against the bulkheads with my feet. There was no light save for an occasional ray of starlight seeping through the meteor perforations, and my only effective means of illumination was the electric torch I had brought with me from the *Camaraderie 17*. It left much to be desired. Presently the passageway gave into a large chamber which, judging from its rows of bolted-down benches and its centrally located dais, was a meeting hall of some kind. I did not linger there—Perk and I had estimated that at most I had only fifteen minutes to carry out my explorations—but turned, and proceeded aft, entering another passageway, this one much higher and longer than the first. On either side, compartments were arranged in tiers, and each of the tiers above deck-level was fronted by a catwalk. I entered several of the compartments and looked around, but I saw nothing in each case but a bunk-like bed and a small chest. The beds were bare, and the chests were empty. Continuing on down the passageway, I came to another chamber, this one, judging from its bolted-down tables and benches, and the utensils drifting about, a combination dining room and galley. Again, I did not linger. My primary interest was the power source that had once propelled, illuminated and heated the ship, and had provided it with artificial gravity, and I reasoned that I would find this source in the stern. I was right, but before I located it I came to still another chamber. This one was huge, and it was filled with cages. All of them were empty, but they set me to thinking. For one thing, there were hundreds of them. For another, they ranged in size from tiny to titanic. For another, each of them struck me as having been built to accommodate not one animal, but two or more. I remembered the innumerable meteor penetrations, and the great age they implied. I remembered that in the vacuum and in the absolute zero of space, corrosion and decay are unknown and that under such conditions objects can be preserved for millennia. I remembered the dimensions of the ship. It couldn't be, and yet—

SEN. LARCH: Please confine your account to what you saw and what you did, Colonel Greaves.

LT. COL. GREAVES: Very well. The chamber housing the power source, when I finally located it, proved to be quite small. The source itself was an ion motor. It had been thoroughly and deliberately smashed, and both its condition and its advanced design prevented me from being able to tell very much about it, but I *could* tell, nevertheless, that while it had been capable of pow-

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ering the ship in space, it could never have launched the ship from a planet, assuming that said planet's gravity approximated Earth's. Launching a ship the size of that one took some doing, and I take off my hat to the technicians who accomplished it.

SEN. LARCH: They just might have built the ship in space, you know.

LT. COL. GREAVES: I have reason to believe otherwise, but if they had, I'd still take my hat off to them.

SEN. LARCH: All of which indicates, does it not, that we are dealing with a race of people scientifically superior to our own.

LT. COL. GREAVES: It does.

SEN. LARCH: Then, assuming for the moment that your theory is valid, dosen't it strike you as highly improbable that the sole survivors of so scientifically advanced a race would, immediately after landing on Earth, take up primitive husbandry?

LT. COL. GREAVES: No, it does not. I think that in undertaking the voyage to Earth, the passengers and the crew of Spaceship X meant to leave far more behind them than the natural catastrophe—probably a tectonic revolution—that had occasioned their exodus. I think that they meant to leave behind them a way of life which they had come to loathe because it had supplied them with false gods, and I think that once they landed on Earth and dispersed, they threw this way of life over their shoulders and deliberately reverted to the thoughtworld and the religious cosmogony of their remote ancestors. In other words, I think that they used the natural disaster that forced them to migrate to another planet as an excuse to begin all over again, and that they burned their bridges behind them so that they would *have* to begin all over again. Probably they blew up the auxiliary craft, or lifeboat, and every technological gadget it contained the very same day they landed . . . Earth, in those days, must have seemed like a promised land indeed. Green, fertile, relatively unpeopled . . . They had no way of knowing, probably, that intermarriage with the natives would soon decimate their average life-expectancy.

SEN. LARCH: Wouldn't you say that you're indulging in some rather wild surmises, Colonel Greaves?

LT. COL. GREAVES: Not at all. I think that the find I made shortly after returning to the forward part of the ship justifies everything I've said.

SEN. LARCH: You're referring, no doubt, to the 'dove'. Very well —go on, Colonel Greaves.

LT. COL. GREAVES: I had some

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five minutes remaining when I got back to the large hall from which I had begun my explorations, and I knew that I would have to hurry if I expected to see the rest of the ship. Crossing the hall, I passed through a wide entrance and found myself at the base of a spiral companionway. I propelled myself up the metal stairs, and a few minutes later, found myself on the bridge. The first object my torch beam picked up was a huge viewscreen. When activated, it must have provided a splendid view of space, but now of course the screen was blank. Next to the screen stood a long desk, and on this desk lay the ship's log—the metallic scrolls which had been left behind (deliberately, I believe) and which are now being deciphered by Dr. Noyes and his staff. In addition to the viewscreen and the desk, the bridge contained a complex sextant, and an instrument panel so intricate that compared to it, our panel on the *Camaraderie 17* seemed like a primitive abacus. To the right of the panel, a doorway opened into another sequence of compartments. As there were only four of them and as they were obviously much more spacious than the previous compartments I had found, I concluded that I had blundered into officers' country. One of the compartments appeared to be considerably larger than the other three, and believing it to be the captain's, I looked into it first. I learned nothing beyond the fact that two people, not one, had occupied it. I found this to be the case with the three remaining compartments, and concluded that the four officers had had their wives with them. Finally I returned to the bridge. I had only two minutes to go now, and I probably would have propelled myself straight back down the companionway (I had already taken possession of the scrolls) if the 'dove' hadn't caught my eye. That's exactly what I thought of when my torch beam picked up the object bracketed to the bulkhead—a dove. A dove in flight. Investigating, I learned that it was a streamlined telescopic camera the lens of which were probably located somewhere in the ventral region of the hull. The 'wings' were merely a device for centering the image and focusing the lens, while the 'body' provided the housing for the automatic developing unit and served as a receptacle for the finished photograph. The final photograph to have been taken and never been removed, and it stood out vividly in the beam of my torch. It was a photograph of an olive grove. By now, my time had just about run out, and I removed the photograph from the 'dove', returned to the boat-bay area, picking up a fragment of meteor-dislodged

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metal on my way, and regained the *Camaraderie 17*.

SEN. KUELL: It is imperative that I interpose a few words at this point, Senator Larch.

SEN. LARCH: Please go ahead, Senator Kuell.

SEN. KUELL: Colonel Greaves, I am of course familiar with this photograph you brought back, but, while the general trend of your reasoning is apparent to me, I cannot comprehend how so insignificant a discovery could have set so unorthodox a train of thought in motion. The fact that the photograph depicts an olive grove means absolutely nothing, even when brought into juxtaposition with the concomitant fact that the camera used in taking and developing it was shaped like a dove. How could you possibly have arrived at the conclusion you did?

LT. COL. GREAVES: Because my 'train of thought', as you call it, was already in motion and had been in motion for some time. The camera and the photograph were merely the final clues in a whole series of clues: the ship's dimensions, its obvious age, the cages, the large compartment in the officers' section, and the three smaller ones . . . With the discovery of the camera and the photograph, everything fell into place.

SEN. KUELL: *Everything*, colonel? I can think of any number of details that your theory does not explain. What of Xithuthros, Prithu, and Ut-napishtim? What of Deucalion and Pyrrha? Would you have me believe that *they* were aboard this stream-lined space-scow of yours?

LT. COL. GREAVES: In a sense they were. All versions of the legend are based on handed-down memories of the voyage of Spaceship X from Planet X to Earth, but the concept of space being beyond the scope of primitive minds, the two planets were made into one, and the survivors of the disaster were pictured not as fleeing from one planet to another, but as sweating out the debacle in a craft that never left Earth. The religious cosmogony which the survivors reverted to after spreading out among the early civilized sectors of the world was adapted in various ways, but the most authentic version, I believe, comes down to us through Genesis, since it was in the region that later became known as Judea that the captain of Spaceship X and his three officers settled down.

SEN. KUELL: All of this is pure conjecture, colonel. You haven't so much as a single fact to go on.

LT. COL. GREAVES: You're forgetting—are you not, senator?—that a blow-up of the photograph of the olive grove revealed several pieces of pottery in *good* con-

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dition that the experts agreed dated from the late Neolithic Period.

SEN. KUELL; and you're forgetting—are you not, colonel?—that a vast difference exists between an olive *grove* and an olive *leaf*. And how do you explain why these ancient voyageurs of yours brought animals with them? More important, how do you explain what became of these animals? Surely if they had been landed, some evidence of them would remain, and just as surely, that evidence would have come to light by now.

LT. COL. GREAVES: Maybe they were brought along out of compassion. More probably, they were brought along because the survivors were flesh-eaters. In either case, you can be certain that they were transported from the mother-ship to Earth. As to why no evidence of their existence has ever been found, isn't it reasonable to assume that Planet X paralleled Earth in lower, as well as higher, forms of life?

SEN. KUELL: Only if you're trying to shore up a theory that is about to collapse. But it will do you no good, Colonel Greaves: the text of Genesis confutes your entire contention.

LT. COL. GREAVES: On the contrary, the text of Genesis substantiates my contention. Let me quote one or two passages by way of illustration. '—the same day were all the fountains of the great deep broken up, and the windows of heaven were opened.' This is race memory coming to the fore in the form of an imagery so strong that it survives translation, and with the aid of a little imagination, the passage can be interpreted to mean that all is in readiness for the launching. 'And the waters prevailed exceedingly upon the earth: and all the high hills that were under the whole heaven were covered'. If you will substitute 'distances' for 'waters' and 'over' for 'upon', you will obtain a fairly clear mental picture of a planet fading from sight in the viewscreen of a departing spaceship. And how about the 'stories' referred to in the building specification? '—with lower, second, and third stories shalt thou make it'? Those weren't 'stories', senator—they were stages. Rocket stages. The number of rocket stages that would be required to launch a ship the size of Spaceship X into space.

SEN. KUELL: I submit, colonel, that your reasoning is defective. I submit furthermore that it is not the sort of reasoning which normal well-adjusted Americans indulge in, and I hereby recommend to this committee that both yours and Commander Perkins' qualifications be reexamined at the earliest possible opportunity and that both of you be relieved

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from duty until such time as it can satisfactorily be proven that both of you have recovered from your hallucinatory experience.

LT. COL. GREAVES: But the scrolls I brought back aren't hallucinatory, senator. Neither is the fragment of—of—yes, of gopherwood. And certainly the photograph is real enough.

SEN. KUELL: Granted. But I have grave doubts about some of the other items you have called to our attention. I'm afraid you're going to be in for a rather rude awakening, Colonel Greaves, when Dr. Noyes and his staff finish deciphering the scrolls. Gopherwood indeed!

SEN. LARCH: Excuse me, senator. I have just been handed a telegram from Dr. Noyes. It—it would appear that they have deciphered the scrolls already. I will read the telegram aloud: 'Deep Space Scrolls prove Spaceship X to be Noah's Ark beyond vestige of a doubt—Noyes'.

An extended silence.

* * *

SEN. NICHOLSON: I hereby resolve that this hearing be adjourned and that a transcript of the proceedings be made public immediately.

SEN. KUELL: Gentlemen, I implore you not to act hastily in this matter. Don't you see that if we accept Dr. Noyes' word as final, we will be obligated to accept as fact that the concept of one God did not originate on Earth, but somewhere out there in the wastes of space? We will be obligated to admit that Earth was not the purpose of all creation, but only a sort of afterthought?

SEN. HEWLETT: Gentlemen, I emphatically disagree. We are now obligated to do what we should have done before: to really accept God as the creator of the universe as we have come to know it. I hereby move that we shed our geocentric cloaks once and for all and start looking upon space not as a bête noir which circumstance and the Soviet Union have forced us to come to grips with but as a great star-flowered sea upon which we should have ventured long ago. That God is far beyond the pale of our picayune conception of Him is a fact that we have known all along but which we have refused to live with because we would have had Him be as small and as petty as we are. Let us resolve from this moment on that when we say 'Almighty' we mean 'Almighty' beyond peradventure of a doubt. Gentlemen, we have roots among the stars! Let us lift off from this dust mote on the doorstep of reality and wing our way into the majestic hall of universe and go asearching for the planet of our birth!

SEN. LARCH: Amen.

END OF TRANSCRIPT

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The Venus Charm

By JACK SHARKEY

Illustrator ADRAGNA

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The amulet held unthinkable power: power of light, power of darkness. Trouble was, Rogan couldn't tell which was which.

WHEN Rogan came to, he was lying clear of the wreckage. How he'd escaped the holocaust that had fused steel fins to crystolite ports in an amorphous melange still too nearly molten to approach with comfort, he had no idea. Strapped about his waist, its ragged ends charred to black bubbles, was the nylon mesh safety belt that had secured him in place at his seat in the pilot cell toward the nose of the crumpled ship; had it been stronger, had it truly served its purpose, he would even now be a travesty of a living being, a contorted figure of calcium, iron and sooty carbon, somewhere within the smoking slag-heap that at his last recollection had been a sleek, soaring spaceship. With trembling, grateful fingers he now undid the clasp of that mercifully inadequate belt, and let it fall from about his waist to the gritty gray and white sand that had cushioned his—he could only assume—hurtling tumble.

Aside from a dull ache in his ribs—the jolt must certainly have driven the breath from his unconscious body—he could detect no damage to his person. The short-sleeved blouse and loose leggings were still intact, as were his duraflex boots and broad belt, nor could he find any damage to his flesh save a stiff, post-abrasion soreness along his left cheek and jawline where they'd scraped, then lain, upon the sand. His exploring fingers encountered an unwonted lump between blouse and chest, and then—even as his fingers withdrew it upon its slender cord—he remembered the charm he'd won from the Venusian attaché, Earthside, during an off-duty poker game with five idle spaceport loungers from as many planets. Valueless to Rogan, he had yet noted the esteem in which its whilom owner had held it, and for that reason alone had allowed the Venusian to stake it against the cards in the final

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hand of the game. The Venusian had begged him to hold off his departure until he could borrow funds equalling his debt to the Terran player, but Rogan had gotten field clearance for takeoff a half-hour before the time of the other's promised return with the cash, and—rather than be dropped back to the end of the long waiting list at the busy field—had considered the Venusian's loss just the fortunes of war, and taken off from his berth on schedule.

"Right into the roughest ether storm in the cosmos," he muttered, both bitter and wryly amused at the results of his action. Where his ship might be, now, he had no idea. It lay before him on the sandy soil of *somewhere*, certainly; but as to where in the universe that somewhere might be, Rogan had no idea. He'd barely set his course and plotted his vectors when the storm had caught the tiny ship in invisible walls of force, blacking out the ship's electric system, dissolving the control panel before his startled eyes into a melting plane of crackling flame—Then a sickening side-slip from reality as a short-circuiting electronic network cut in the hyperspace drive the fleeting instant before Rogan's battered consciousness gave way to merciful blankness.

OVERHEAD, the cold white stars lay across the dome of dark emerald night sky in unfamiliar configurations. A good space navigator might be able to divine his probable locale from those stars, taking magnitude- and location-variables into three-dimensional account—Rogan, never. He relied, and always had, on the ship's taped circuits that pre-set a pilot's cosmic vectors; punch a destination and count three while the automatic calculators did the rest. Simple, easy and—he realized now—perilously reliable.

Then, abruptly, Rogan threw back his head and laughed aloud as he realized the futility of his situation. "Even if I *had* studied navigation-in-depth," he thought ruefully, "a lot of good it would do me to know where in space I was at!" Because, he reflected, looking again upon the unrecognizable mass of the ship, wherever he was, he was there to stay. At least for quite awhile. Till he found a city—if there was one; a city with technological advances at the interstellar-travel level, at that.

There seemed no point in remaining alongside the ship any longer. It had carried him here, then died. And that was that. The surrounding terrain was barren of vegetation, and Rogan suspected that it would be a brutally hot place to trek in day-

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light. If he were to travel at all, it had best be now, while the cool of darkness persisted.

He turned the Venusian charm once between his fingers, then dropped it back within his blouse again, and began to walk toward the horizon, licking lips already slightly dessicated by the waterless atmosphere of the place, and trying not to let his mind dwell on memories of men he'd seen dead of thirst, in regions all too similar to his own enforced environs. "You'll find water," he told himself, and tried not to disbelieve this confident statement that had no basis in reason, only in mortal hope.

WALKING requires little thought; the legs move of their own accord once triggered by the mind, stopping only at that same mind's behest or the attainment of sudden pain or utter exhaustion. So Rogan's mind was free to ponder his path along that alien sand. It was idle bemusement more than concentrated thought, but the part of his mind that considered the locale, idly or not, made some interesting observations.

The terrain, it noted, was almost entirely featureless, an unusual aspect in a desert region. Not a bare outcropping of windworn rock, not a scraggly, tough-skinned travesty of a plant, not so much as a single dune rising before him like an ocean wave jelled in mid-surge. The only relief from total flatness was a sense of planetary curve between Rogan's area of existence and the always-retreating horizon. *Strange,* said the impartial observer in Rogan's mind.

And *wrong,* said Rogan, suddenly taking the mental reins.

He halted, pondering deeply, for the first time worried not so much at his overall situation as at the possible peril of his physical environment. Stooping, he took a pinch of the gray and white gritty stuff of the ground between thumb and forefinger, sniffed at and tasted it. "Resinous," he decided, puzzledly. "Definitely resinous. And—" he noted further, as he compressed a bit of it tightly between strong digits, "sticky." It was as though he were walking on the minute spheroids of, not windworn silicates but, crystallized *glue!*

Rogan stared at the flat gummy smears on the ball of thumb and finger, touched them lightly together, then slowly brought them apart again. Like a cobweb brought into instantaneous existence, a thousand fine, silvery strands extruded from the gray-white tackiness of the surfaces, bridging the gap with glistening, tangling filaments of treacherous adhesiveness . . .

"From *body* heat!" said Ro-

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gan, his voice choked small and echoless by the night-cloaked vastness about him. He knew not what star might service this planet as its sun. But it would be warm, far warmer than the constant heat of his blood. How *deep* could such a coating go?; he wondered, feeling a sudden premonitory chill along his spine. More than mere inches, or his feet would have scuffed it clear of what firm support lay beneath. His ship, he remembered, was more than half-buried in the at-first-supposed sand. A small ship, it was true; but far taller than his own six-feet-three . . .

Rogan straightened up and began to walk swiftly, much more swiftly than before. There had to be someplace beyond. Some spot on which he could be standing when this illusively firm ocean of grit became a choking quagmire of smothering glue. Rogan had no relish to be someday unearthed by some nameless alien archeologist, frozen like an insect in amber.

He slowed his pace for an instant when it occurred to him that his flight could be carrying him *deeper* into the desert, for all he knew, or even *toward* the point whereat the sun would arise at dawn. But, he realized, resurging forward, any such speculation was futile. He could not know, by any means at his disposal, which was the shortest route, the safest route. To continue might be foolhardy, but to remain where he stood was madness. His stride became an impatient jog, then a sprint; at first, steady-paced and controlled, but finally a blindly panicky run across the sands, the featureless, changeless sands that stretched before him as far as his staring eyes could see.

HIS throat was raw, his lungs aching, when the stars began to lose lustre, and the dome of dark emerald to glint with pale dustings of pink and yellow and orange. Rogan stopped, turned his head in all directions, trying to determine, in an onset of unreasoning despair, from which direction the sun was likely to appear, but he could not. "Don't be a fool," he urged himself. "You've come *this* far in a straight line. Moving in any other direction is useless." So he kept on. Kept on even when the first arc of burning sun showed itself over the edge of the planet almost directly before his frightened, perspiring face.

Already, as he ran, the spheroids of the gummy surface beneath his boot-soles were starting to melt, to fuse one to the other in a glistening, sticky mirror that showed him the inverted images of the climbing orb of sun and his own racing body. The tackiness began to tug at his

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feet . Wisps of extruded glue began fluttering behind his boots like tattered pennants. Each footfall seemed to sink deeper as he set it down, to pull free with a soft sucking noise as he continued onward.

Then he saw the shadow.

An untoward sight in the flat, smooth desert, the shadow stretched almost to his feet from the horizon which the burning sun was even then clearing, but retreated from him swiftly as the angle of sun and planet altered.

"Whatever it is," Rogan told himself grimly, "it has not melted in the heat. Even if its surface is white-hot steel, I'll climb upon it to fry to death before I let myself be pulled into this gray guck!" He followed the retreating shadow, knowing it had to lie no farther than the horizon, hoping the horizon was not so far off as it seemed. His last hundred yards were a nightmare. Ankle-deep, finally knee-deep, his motion slowed terrifyingly, as though he were a helpless animation on a film-frame in a projector that drooped its shutter with a languorous procrastination, more slowly by the moment, Rogan waded toward that solitary spot of safety and—scarcely able to credit his miraculous fortune—crawled onto it. It was many moments of agonizing slowness before he at last retrieved both feet from the clinging, resisting surface. Exhausted, he flopped onto his back, threw a forearm across his eyes to block the flaring globe of the sun, and lapsed into unconsciousness.

ROGAN awoke to a blaze of sun already beyond the zenith of a sky as bluegreen as a peacock's tailfeathers. Though he was uncomfortably warm, he was not sunburnt, nor did his probing tongue discover lips any more parched than when he had sprawled exhausted upon this solitary safety zone amid the fields of clinging grey-white menace. For the first time he began to investigate the nature of the surface on which he'd taken refuge.

A jutting, truncated elbow-thrust of solidity in the sea of glassy-smooth adhesion, the thing upon which he lay was soft as talc, and of a particularly loathsome fishbelly green in color. Yet, despite the smoothness, the configuration of the surface was ropy, as though coil upon coil of writhing cable-segments had tumbled in a heap, then petrified; the deep incisions of shadow beneath and between these arcing shapes mottled the otherwise pallid shade of his perch with lunes of sooty black.

His eyes, taking in the strangeness of his locale as he

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lay partially prone, partially propped up on one elbow, drifted beyond the rim of the talc-mound to the surface of the surrounding liquid. Something in the clarity of the reflected sun in that unrippling mirror, its image round as a dime, made him look a bit more closely at it. A separation seemed to have occurred in its depths.

The grey-white gluey stuff had settled, leaving a clear covering above, as melted fat rises to the surface of meat drippings in a bowl. Rogan scooped a palmful of the clear liquid to his dried lips and tasted it. It was water. Tasting just slightly of something akin to turpentine, it nevertheless could quench his thirst. He drank it hungrily, greedily, then got to his feet to better survey his incredible environs.

The colloidal part of the surrounding sea, even allowing for the distortion of refraction, must lie eight feet or more beneath the water, he realized. If he knew which way dry land lay—and how far—he could try to swim for it . . . Then he thought of nightfall, with the colloids sucking up the liquid once more, the crystals of irresistible sticky murk forming about his flailing, thrashing body, and abandoned the thought.

"A boat's what I need," he mused. "That's the only thing could keep me alive during the transitional stage of this mess." He kicked loose an experimental chunk of the ropy solid beneath him, not really hoping it would prove buoyant, and let it skid over the brink into the water. It sank out of sight into the grip of the cloudy glue-stuff far below the surface. "So much for wild schemes," he muttered, then chuckled as he imagined his own discomfiture even if it *had* floated; how he would hew a dugout from the soft stone even with his bare hands able to crumble its dusty substance, he had no idea. A boat was out of the question. Rogan sat down disconsolately on the edge of the talc-thing and tried to think of some other means of escape. True, his thirst was slaked, but hunger was growing in his viscera, demanding, debilitating his strength . . .

As he sat pondering what might well be his doom, his fingers toyed idly with the Venusian charm that still dangled about his throat. Without being more than casually curious, he glanced at it, turning it slowly between thumb and fingers, noting the fine craftsmanship of its construction. It reminded him vaguely of something.

Basically two interfitted halves, it combined cool white alabaster with warm, shiny jet, in matching portions of light and dark-

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ness, as though smoothly hemispheric octopi, one black as night, one a pallid albino, had meshed tentacles, or as though a pair of rounded, eight-fingered hands had clasped. *Black and white,* thought Rogan. *Day and night. Light and darkness.* Then the association of ideas plucked upon a chord of memory—"Yin and yang!" said Rogan. "Goodness intertwined with evil . . ."

HE recalled the oriental symbol, back on Earth, the flat circle divided into two curving tadpole-shapes, the head of each pursuing the tail of the other, and the philosophy of absolute equilibrium which had spawned that peculiar symbol. "Every good thing has its evil counterpart," he remembered, plumbing his mind for the elusive, ill-learned nature of that symbol. "For every act of evil that occurs, a good act is done to maintain the balance of nature. All joy is counterbalanced by sorrow, all courage by cowardice, all hate by love . . ."

Still staring at the sharp contrasts of the object in his hand, his mind leaped back to his own circumstances as they had eventuated ever since his winning of this bauble—or so he had deemed it then—from the Venusian: The good luck of getting clearance for takeoff, balanced with the ill luck of that ether storm; the good luck of surviving the plunge into, and emergence from, an unmonitored journey through hyperspace, contrasted with the near-fatal luck of the crash; but the crash itself mitigated by his miraculous escape from the molten ship, the hideous danger of the glue-fields overcome by his finding of this lone upthrusting dry area in the treacherous morass, and the dessication of the desert-warm sun balanced against the omnipresence of drinkable water when that sun was at its most blazing moment . . .

"Odd," he muttered, staring at the thing. "Almost too odd to be anything more than cosmic coincidence. Still—" Such a theory, put before a rational being, could not be put aside, forgotten, ignored. It demanded of reason that it be put to a test, that it be proven or disproven. "But how?;' wondered Rogan. "If I simply wait to see what will happen next, the outcome could be sheerest coincidence." He shivered at the momentary thought which had crossed his mind, and gave it a stern negative response, aloud. "And I'm not about to start swimming, just on the *theory* that the bad luck of this glue-ocean's recoagulation will necessarily be overcome by something salvational!"

He'd been turning it slowly in his fingers as he pondered, and

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the idea of positioning came to him almost immediately. The slow turning of the thing, he realized, might be keeping the forces of good and evil in a state of neutrality. He wondered—though he knew there was no longer any way to ascertain just how that black-and-white bauble had lain against his breast beneath the surface of his blouse—if the side toward the wearer was that which determined the sort of luck the wearer would have.

He could conjure up two theories on that, either as tenable as the other: white-side-in might bring good luck, black-side-in bad luck, by exerting its unknown influence over the wearer . . . Or—either side *out* might exert that influence over *events* . . .

There was but one way to find out.

Rogan carefully laid the bauble upon his breast, white half upon his flesh, black half outward. And waited. After many minutes, he could detect no change in himself or his environment, although—and this could be attributed merely to his concentrated preoccupation—his hunger-pangs seemed to have entirely abated. "They could come back, quite easily," he told himself. "Maybe they're just taking a breather, on their own. Empty stomachs don't growl *continually*, after all—" He waited a few more minutes, then shrugged and reversed the lie of the charm upon his chest, black side innermost . . .

He was pulled from his concentration by a sound, a hissing, fizzling sound of powerful effervescence, of seething, bubbling wetness. It came from just beyond the rim of the talc-thing on which he sat. Carefully, so as not to disturb the bauble, Rogan leaned to one side and peered down into the sunlit depths of the tranquil ocean beside his perch.

THINGS were swimming there. Ropy, tubular, eel-like things. They slithered and undulated in all directions in the water down there, their movement roiling up grey clouds of stickiness from the colloids beneath their passage. No, not *all* directions. Every direction save *toward* his perch . . . But where were they coming *from?* he wondered, and leaned a bit further over so that his vista included the base of the talc-stone itself where it ramped steeply down into the surging colloidal grey . . .

"Eggs!" said Rogan, with a yelp of startled realization. "I'm sitting on a mound of eel-eggs! And they're hatching!"

Even while he got his wits together, the undersurfaced angle of his perch was diminishing as

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the pale green ropy "talc" flickered with sleekness, wriggled furiously, then burst away into sizzling, bubbling shards as the eager inmate found its freedom. "Good grief!" Rogan choked out, then remembered the black-and-white bauble upon his breast, and with fumbling, frantic fingers reversed it.

The hissing slowed, petered out, ceased. The last of the wriggling eels slithered off into the sea. The talc-thing was dormant once again.

"Whew!" gasped Rogan, wiping salty rivulets of sweat from his brow as he once more surveyed the area of safety remaining to him. The dusty, pale green surface seemed reduced by at least one-fourth. "A close one," he murmured. "A *very* close one!" he added, as the horrible thought came to him that the onset of eel-births might have happened *before* he learned the source of its instigation. The bauble was definitely dangerous to wear. And dangerous to throw away.

"Without it," he reasoned, "I'm at the mercy of anything this idiotic planet feels like dishing out. But *with* it—! I'm at the mercy of whatever position it happens to lie at any given moment . . ."

He had no means of securing it firmly against himself. A careful placement inside one of his boots *might* hold it in position; but—It'd be hell trying to walk with it there, and it could slowly turn about, after awhile, and bad luck would be beating him over the head while he frantically fought the securing-straps of the boot to get back at the thing. For that same reason, pressing it against his abdomen beneath his belt might occasion a fatal delay. "Besides," he thought abruptly, "it might only operate when held against the wearer's breast."

This theory was swiftly tested and proven. Only when the black side lay on his breast at the end of its cord did the eel-things begin to burst from the green eggshells once more, before Rogan reversed the bauble again and halted them.

HE thought only fleetingly of the glue-fields themselves. For a wild moment, he began to consider waiting until sunset, then plucking some of the reformed glue from beside the egg-mound and using it to stick the white side of the charm against his breast, more or less permanently, and start off toward the horizon over the sand-fine colloids, or crystals, or whatever they became at night, in perfect safety. There were at least three things wrong with this plan, he realized a scant moment after devising it:

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1) At night, the glue on the bauble would regain its sand-form, and allow the dangerous charm to swing freely, 2) on the following morning, even if he somehow survived the glue-phase of the transition into colloid-and-water, he would find himself swimming in a *solvent* of the glue he needed to hold the thing in place if dry land had not been reached, and 3) the thing was, after all, a *Venusian* artifact, and—the race being amphibious—even if he *held* it white-side-in when he sank into the sea, the bauble might not consider the new environment a menace, and would do nothing.

"Still," he frowned, pondering this last point, "it *did* seem to think a plunge into the water was bad luck, or it would not have started those eel-things hatching when I put the dark side down . . ." An unnerving idea came to him, then, and Rogan almost wept with frustration. "Or maybe I've figured *wrong!* The other things—the storm, the crash, and all—would be as bad for a Venusian as for me, but . . . Possibly having the black side inward was bringing me the *Venusian* 'good luck' of losing the perch. The bauble doesn't *know* what the wearer is doing. Its forces might assume that a Venusian lying out in the sun was unconscious, and try to help him into a happier environment."

It was maddening. Rogan held unthinkable power, the power for good fortune or evil, on a cord about his throat—And he still didn't know how to use it beneficially!

Other tests came to his mind, but he dismissed them as useless. He could, for instance, place white or black upon his breast and then attempt something harmful, like biting his tongue or pinching his flesh—But what could he prove by that? The bauble might consider "good luck" to be success in the attempt to hurt himself, or "bad luck" to be failure, mightn't it? "In fact—" Rogan said, nearly stupefied by the chilling philosophical insight he'd just had, "who *is* to say what's good or bad luck, in *any* case?! So much depends on one's viewpoint—Even death can be good luck under certain circumstances. Even simple circumstances like simply being tired of living. And how can I know what the bauble is going to decide is best for me?;" And then he knew at last that, with or without the bauble about his throat, the odds against outguessing the probable future remained the same: 50-50. "Because," he mused wearily, "nobody knows what's beneficial, really. It's that damned old 'blessing in disguise' bit! Out of

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evil may come forth good, sometimes, and vice-versa!"

Which explained, he understood all at once, why the creator of this charm, who must have known which half controlled good fortune and which controlled bad, had yet included *both* in its manufacture. Balance. Equilibrium. The teetering poise of the events of the cosmos must be maintained, at all costs. To have all good luck could be an evil, if only against one's less fortunate fellows; to have all bad luck could be a good, insofar as it taught the unlucky bearer the virtues of humility, courage and endurance . . .

"Still—" Rogan said slowly, staring at the gleaming halves of the charm in the reddening rays of the approaching sunset, "if I had my *choice* of the two—"

HE would choose only good luck. Who would not?! Selfish as such a desire might be, it was only natural to prefer good fortune to bad. And here in his hands, he thought, his mind trembling at the magnitude of the idea growing within it, he had his choice of either . . . All he need do would be to prise the intertwined halves apart—! Then select the good one . . .

Constructed from two discriminate substances, there had to be a way to get the twin-sized, seamless halves apart. "And in doing so," Rogan realized, "I will know which half is which!"

For it had come to his mind that no mucilage, no bolt, no welding had been necessary to join the twain. The very nature of what they were did the trick. The good half would cling hard lest relenting should admit the evil, ungoverned, into the universe; the evil would cling lest it were the cause of unbridled goodness being set free. Good could not do such an evil deed, nor evil such a good. Therefore, Rogan had the method by which they might be pried asunder. He would turn their own natures against them . . .

With thumb and forefinger of each hand he gripped the separate portions of the charm, black in his left fingers, white in his right. "Now," he willed fiercely, playing a psychological trick on his consciousness, "my hands tug apart, gently but firmly, yet —My right hand does *not* wish the white half to come free of its counterpart, but my left hand *does* wish to separate the black!"

His tugging produced no result. And so at last, he knew.

Knew that the white was good, for it had done as it was bidden; knew that the black was evil, for it had refused.

"Therefore," he said, shivering in near-frightened anticipation of what he was about to do, "I *reverse* my commands:

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"My right hand wants the white half to come free, my left does not want the black to do so! Whiteness—Release! Darkness—Hold fast!".

Soundlessly, sinuously, smoothly, the "limbs" of the two octopi, the two clasped round eight-fingered hands, slipped apart before Rogan's eyes into their basic components.

"I've done it!" he roared aloud in triumph.

And then—

Swifter than a flickering eyelid, than a striking snake, the eight limp limbs of each half lashed out, enwrapped, and clung like leaches to the balls of Rogan's left and right thumbs. And simultaneously—

Euphoria, serenity, surging ecstacy flooded through the entire right side of Rogan's body, while rending, agonizing, shrieking pain contorted his left . . .

As he staggered, spread-legged atop the egg-mound, a visible line of demarcation sundered the planetary surface before and behind him, and where his joyous right hand flung outward in happiness, the coagulating glue-sands vanished to be replaced by lush green arbors, rolling hills, cool blue streams, even as his throbbing, flailing left hand created a planetary chaos of boiling sulphur pots, boiling plumes of scorching flame, and a screaming wind of blackness and torment.

The sky to Rogan's right pulsed and glowed with a rainbow of sunset color and the slowly appearing blue-green mantle of night cooled by a billion sparkling stars, while the cosmos to his left exploded into flame and fusion and hurtling comets of illimitable debris . . .

The very fabric of existence began to fray along the plane of the terrible breach of all equilibrium of energy and matter . . .

Chronology itself was wrenched apart, slammed together again, overlapped, mingled, spun upside-down, for a tottering, whirling brush against the ageless matrix of infinitude . . .

* * *

". . . until I can return with the necessary cash," said the Venusian, dangling the bipartite bauble before Rogan's eyes.

Rogan looked at it, frowning. It seemed familiar to him, somehow. His hand reached out to it, then abruptly withdrew. "Hell," he said, "that's of no use to me. You can send me the money when you get it."

A light blinked on the wall over the exit.

"That's my clearance," sighed Rogan, getting up from the table. "See you guys around." He hurried through the doorway and trotted across the field to his waiting ship.

Blastoff and journey were uneventful. **THE END**

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FACT

EXTRA-TERRESTRIAL LIFE:
An Astronomer's Theory

By BEN BOVA

The readers of science fiction live in two worlds. On the one hand we accept with a willing suspension of disbelief the existence of a multitude of life-forms in the Universe. On the other—that is, when we have finished reading science fiction—we wonder whether *there is life anywhere else but on this planet.*

The editors of AMAZING *have asked expert Ben Bova to explore the subject of extra-terrestrial life so that all of us can consider it intelligently as well as emotionally. Mr. Bova writes, in this first article of a series of four, about the nature of life on Earth. His subsequent articles will discuss the scientific possibilities of life on other planets; the inevitability of life in the Solar System; and the probabilities of life elsewhere in the Universe.*

THE well-endowed blonde registers stark terror, screams and tries to get away. Towering over her, the Giant Lobster quivers his antennas menacingly. His malevolent claws reach out for the blonde. She shrieks again and runs, only to stumble and fall. The Giant Lobster rips off most of her clothing with one monstrous claw, and with the other . . .

That's the way Hollywood views extraterrestrial life. Just like home, only bigger. But the thing that makes science fiction (and science fact) interesting is that it must be internally consistent. To blow up a two-pound lobster into a monster weighing several tons sounds like a shaky business, at best.

But let's not just sit back and criticize. Why not build a giant lobster? Exploring this should help us to see the problems connected with envisioning life on other worlds. To make certain that our exercise is meaningful, and not merely wasted rainbow-chasing, we'll be guided always by the known laws of physics, chemistry, biology, and astronomy.

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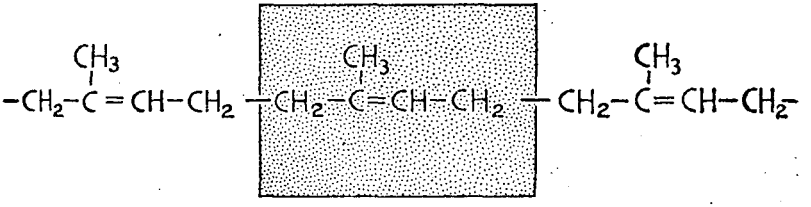
FIRST, comes the matter of size. Arbitrarily, we'll take a two-pound lobster and multiply his size by a factor of 25. Since weight depends on volume, and volume varies with the cube of size, our giant weighs $2 \times 25^3 =$ 30,000 pounds—15 tons. That should be big enough to frighten any blonde in Hollywood. Just to be nasty, we'll have our extra-terrestrial crustacean breathe fluorine. This means he'll have to carry some sort of breathing apparatus, because our air would be poisonous to him. We can hardly expect a 15-ton fluorine-breathing lobster to have a body chemistry remotely similar to our own. Or can we?



Part of an organic carbon-chain molecule (gutta percha, a rubber-like substance). The shaded area shows a single isoprene unit. These units link together to form the long-chain molecule. Note that each carbon atom has four valence "links," and combines either with hydrogen atoms or other carbons in variations that always total four.

Just what is this thing called life on Earth? What's the difference between a living lump of protoplasm and a non-living heap of chemicals? What are the essential requirements of life? And, most important, how did life get started here in the first place? The chemical basis of life is a molecule called deoxyribonucleic acid (DNA). All life on Earth, from algae to whales, is based on DNA. The most fundamental part of a living cell, the genes, are DNA. The smallest living creatures, the viruses, are little more than single molecules of DNA.

You probably know that animal bodies—our own included—are built of proteins. Various types of proteins also regulate all our bodily chemical processes; in this role they're known as enzymes. Proteins are composed of many different combinations of amino acids. The DNA molecule, with the aid of ribonucleic acid (RNA), can "manufacture" amino acid and proteins. DNA can reproduce itself *from simpler surrounding material.* This is the fundamental of life. Auto-reproduction. The ability to make simpler chemicals and build them into a DNA molecule. No other atom or molecule can do this. No other atom or molecule is alive.

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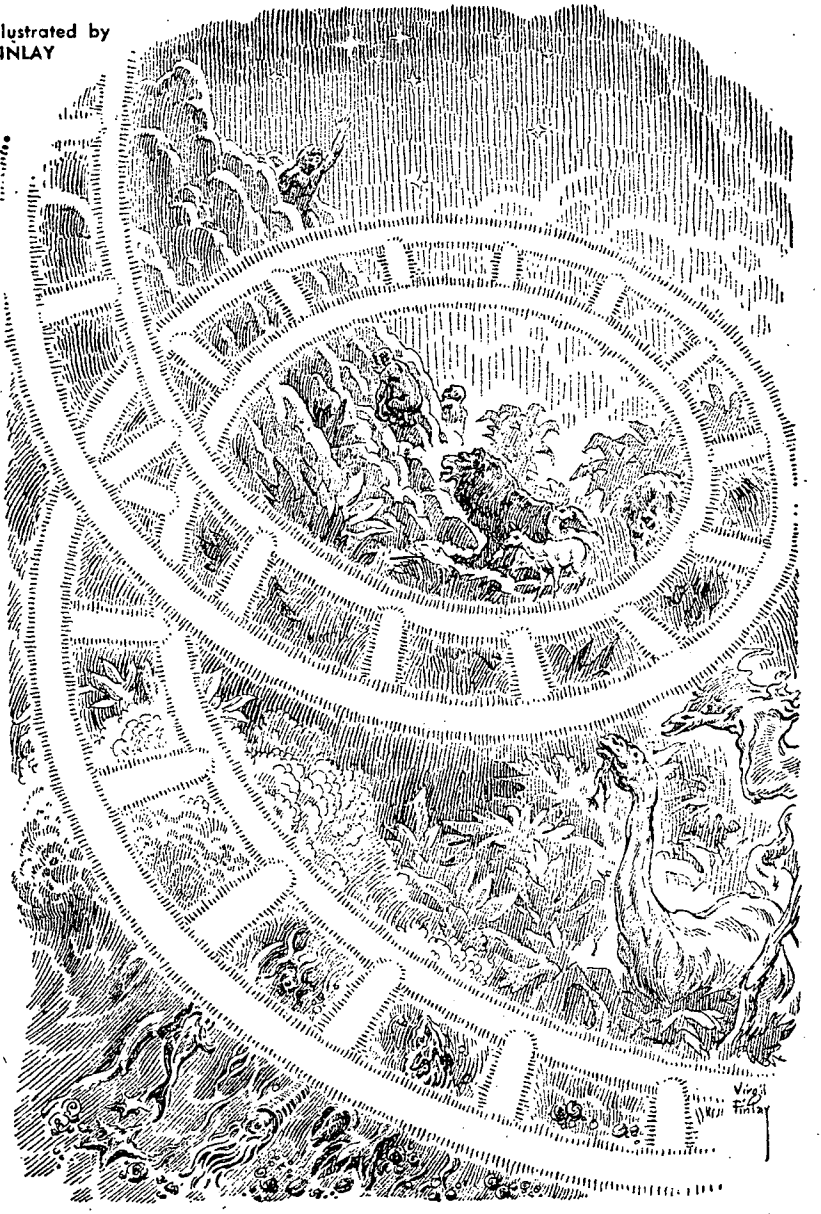
Illustrated by
FINLAY



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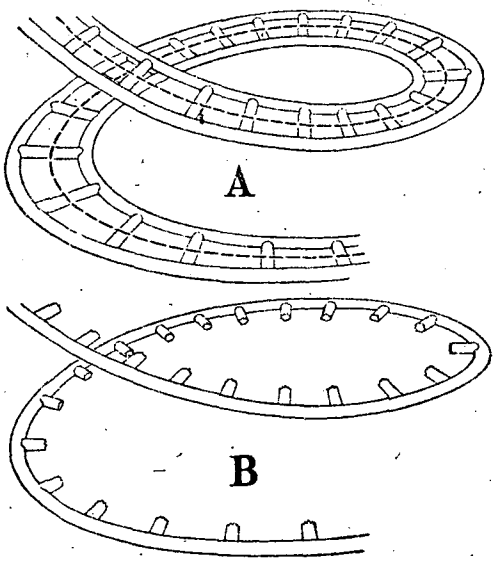

Autoreproduction of DNA molecule:

(A) shows a complete DNA molecule, consisting of a double spiral with interconnecting bridges.

In (B) the two spirals have separated by splitting the bridges in half. Each half bridge will connect only with materials similar to those it was connected to in the original molecule. Thus two molecules exactly the same as (A) are produced. The total mass of one entire DNA molecule is equivalent to six million hydrogen atoms!

WHAT'S so different about the DNA molecule? First, it's the giant of the molecular world. Inorganic molecules may contain a half-dozen or so atoms. Organic molecules (rubber, for instance) are composed of thousands of atoms, arranged in a long, carbon-based chain. But the DNA molecule dwarfs them all. It is composed of literally millions of atoms, arranged in a complex double-coiled structure. Like the organic (but un-alive) molecules, DNA is based on carbon chains—that marvelous ability of carbon atoms to link up into long, complex structures. In DNA, atoms of oxygen, nitrogen, hydrogen and many other elements combine with carbon.

DNA is built on a double-helical pattern: like two spiral staircases intertwining, with connecting spans bridging between them. When DNA reproduces, the two spirals separate; the interconnecting bridges break in half. The open ends of each half-bridge are an open invitation to nearby chemicals to join up. But the bridges will only accept very specific partners; they will connect only with the exact type of molecular structure that they were linked to in the original molecule! Thus each half-bridge seeks out a partner exactly like the one it originally had. These new partners, in turn, are forced to link together as they join the DNA half-molecule. When the in-

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terconnections are completed, each half of the original DNA molecule has reproduced its "missing" half. There are two double-helix DNA molecules, ready for business.

The question now arises: Where did DNA come from? We have seen that anything less than DNA cannot auto-reproduce. A single DNA molecule can, in theory, explain the origin of all the life on Earth. But we must be able to explain the origin of that first DNA molecule, or else all we can say about life on Earth—or elsewhere—is that it arose "somehow." We must view Earth as it existed 2.5 billion years ago . . . just before life began.

THE planet had a solid crust and large oceans. But the land was barren rock, lifeless, a bleak gray landscape racked by wind and rain, without a hint of color. The atmosphere of the young Earth was ammonia, methane and carbon dioxide: poisonous to us. Only the friendly sea would we recognize, and even that was not exactly the same. The oceans were less salty then, since 2.5 billions years of constant erosion of the lands by rain and wind have added considerable salt to our modern seas. But, then as now, the oceans were the predominant feature of the terrestrial scene. The oceans contained a great number of dissolved chemicals in their waters. There were ions of sodium chloride, potassium, calcium, magnesium and several other minerals, plus considerable amounts of ammonia, carbon dioxide and other gasses dissolved from the atmosphere.

That list of ingredients excites the biochemist. It is almost exactly the same combination of chemicals contained in living cells. In human cells. Our bodies today carry replicas of the ancient seas of Earth. Thus, while the oceans of 2.5 billion years ago contained no living creature, they did hold all the necessary ingredients. What happened seems obvious. The chemicals in the oceans arranged themselves in such a way that they formed a DNA molecule.

Of course, DNA is a fantastically complex molecule, but in 2.5 billion years, the simple laws of statistics should be enough to explain the formation of at least one DNA. Shouldn't they?

NO. It's not that easy. DNA is composed of millions of atoms. If the atoms are connected at random, only according to the laws of statistics, the chances of reaching the exact combination of DNA (so my mathematically-inclined friends tell me) are $10^{5,000,000}$ to 1! That's a 1 with five million zeroes behind

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it! If you could write nine zeros per second, it would take 24 hours to write down that number. There hasn't been enough time yet in the whole universe to expect the proper combination to arise by blind chance. Well, then, perhaps it was an accident, a lucky throw of the dice that gave us a DNA molecule long before the laws of statistics would otherwise have permitted it. It's a tempting speculation. But if we agree that life on Earth is a fortunate freak occurence, what are the chances of life elsewhere? How many such freak occurences can we expect in one Solar System? Or even in one galaxy?

But look again. Remember how the DNA helix splits and forms two new molecules of itself from simpler surrounding chemicals? Those DNA half-bridges don't combine "at random". They're very specific about their partners. To some extent, all atoms are choosy about how they combine. (Anyone who has suffered through memorizing valences in high-school chemistry should see this point with painful clarity.) We can picture, then, a period of "chemical evolution" in the primeval seas that preceded the advent of the first living molecule. Over countless millenia, atoms combined to form constantly-larger, constantly-more complex combinations. Gradually, long-chain carbon molecules arose. Then the ring structures that biochemists call porphyrins, purines and pyrimidines. The seas were becoming what has been described as an "organic soup." Amino acids were formed, and then proteins. Finally the nucleic acids—DNA and RNA—appeared. The inevitable happened. A DNA molecule met and joined a protein, forming the first nucleo-protein molecule. From then on, DNA could reproduce nucleoproteins. Life began on planet Earth. Chemical evolution gave way to biological evolution.

All that was needed to produce this chain of events was time and energy. Time there was in plenty. And the energy that impelled these once-inert chemicals to combine continuously was also plentiful. There was radioactivity from the Earth's mantle, stronger then than now. There was lightning lashing down on the seas from the ammonia, methane, carbon dioxide atmosphere. And, most important of all, there was strong ultraviolet light of the Sun, unfiltered by Earth's primitive atmosphere. The rest is history. Or rather, paleontology. The first living creatures no doubt derived their energy from the not-yet-living chemical that abounded in the "organic soup." This supply soon dwindled to the vanishing point. But life passed its first crisis successfully. Chlorophyll, a porphyrin mole-

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cule, was made use of. Living creatures learned to manufacture their own food from inert chemicals and sunlight. Thus, "animals"—creatures that cannot make their own food—actually pre-date the first plant life.

CHLOROPHYLLIC plants in the sea changed the face of our whole planet. They breathed in carbon dioxide and exhaled oxygen, which went into the atmosphere. The oxygen converted the existing ammonia/methane combination into our familiar nitrogen/oxygen air. Ammonia and oxygen combined to form water and free nitrogen:

$4\ NH_3 + 3O_2 \rightarrow 6\ H_2O + 2N_2$

Methane and oxygen reacted to make carbon dioxide and water: The water joined the oceans,

$CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

the plants breathed the carbon dioxide, and more and more oxygen was poured into the atmosphere to join the newly-freed nitrogen. Finally, our type of animal life appeared to consume oxygen and produce carbon dioxide. Thus the chain of life became a full cycle: plant and animal formed an atmospheric symbiosis.

All this presents a pretty picture indeed. But a theory is still only so much hopeful guessing until it's verified—in whole or part—by experiment. This theory has been partially verified. In 1952, at the University of Chicago, biochemist Sidney Miller mixed some of the chemicals of the primeval sea (water, ammonia, methane, etc.) and passed them through an electrical discharge that stimulated the ultraviolet radiation of the Sun. He obtained two simple types of amino acids, plus indications of at least two more complicated ones. Thus there seems to be no good reason why we can't theorize that life arose on Earth from the "chemical evolution" of 2.5 billion years ago. Furthermore, if we can find Earth-like conditions anywhere else in the universe, we can postulate the existence of life there.

BUT most of the universe is decidedly *un*-like Earth. What about life under non-terrestrial conditions? In particular, what about our giant lobster, whom we left hanging over the helpless blonde? We can use our knowledge of life on Earth and expand it in an effort to find the universal requirements for life . . . the requirements that hold true no matter what environment we care to discuss.

1—*Life needs a building block.* On Earth this is carbon, which has the vital ability to link up in chains and coils and permit the construction of complex molecules. Other elements will do this: silicon can form chains; under

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extreme conditions, phosphorus, boron, and germanium will all make chains. But of them all, carbon is the most active chemically. Our giant lobster, therefore, will be based on carbon-chain molecules.

2—*Life requires a solvent*—some medium in which all the necessary ingredients can be brought together, and in which chemical reactions can proceed. Earth's solvent is water—liquid water. Under un-Earthly conditions we might expect to find liquid ammonia or methane, even liquid hydrogen sulfide or carbon disulfide as passable solvents. For our fluorine-breathing lobster, we can imagine hydrogen fluoride for a solvent. That is, we'll simply replace the oxygen in water and substitute fluorine.

3—*Life needs some form of energy-exchange reaction, and a healthy supply of the reacting substance.* We Earthlings use a heat-producing biochemical reaction involving hydrogen and oxygen. This works nicely on a planet practically brimful of liquid water. But if we go much beyond Earth, water becomes either nonexistent or frozen, and different energy-exchange processes must be found. You can probably guess that our giant lobster's energy reaction will be a hydrogen-fluorine system, since we've already substituted hydrogen fluoride for water. This is a dandy reaction, as far as energy is concerned, but it does pose certain problems. (Incidentally, instead of fluorine, we might have substituted for oxygen just as easily with chlorine, bromine or even sulfur. We would have to juggle the temperature of the lobster's home planet. Sulfur, for instance, won't become gaseous even at the 700° F. temperature of Mercury's hot side; but we *could* imagine a hydrogen sulfide atmosphere at that temperature, and seas of liquid sulfur—a cozy warm planet indeed!)

The main drawback of these elements is that they simply don't produce much energy. Life is a strenuous business, and demands a lot of energy. But the hydrogen-chlorine reaction yields only one-third of the energy of the hydrogen-oxygen system. Bromine gives one-eighth and sulfur a scant one-tenth. Energy-poor reactions! But when hydrogen and fluorine get together, the reaction yields 1.5 times the energy of the hydrogen-oxygen system. More than enough to sustain any lobster, giant or otherwise.

HOWEVER, there's a catch. Two of them, in fact.

First, none of these elements is very abundant, whereas oxygen is plentiful in the universe (as are hydrogen, carbon and

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nitrogen). For instance, for every 43 sulfur atoms in the universe, there are 1400 oxygen atoms (and 3.5 million hydrogen atoms). For every *one* atom of fluorine, there are 1400 oxygen atoms. This makes the chances of a fluorine-breather somewhat scanty. But not impossible. On the other hand, it improves our chances of someday meeting a fellow oxygen-breather.

The second catch involves the energy ratio of the hydrogen-fluorine system. While this reaction yields a nice helping of energy, it also requires a lot of energy to break up hydrogen fluoride into its two constituent elements. On Earth, chlorophyllic plants use the red light of the Sun to break water into hydrogen and oxygen. That's the starting point of our type of life. But red light isn't energetic enough to split hydrogen fluoride. Ultraviolet light is needed. If we towed the lobster's planet close enough to a Sun-like star to get the necessary dosage of UV, the temperature of the planet would go up high enough to boil away the fluorine atmosphere. (A fluorine atmosphere would require a planetary temperature range somewhat cooler than Mars', yet warmer than Jupiter's.)

Our only alternative is to find a star that emits much more UV than Sol does. There are many such stars: blue giants like Rigel, Spica, Regulus and Achernar. We can place a planet far enough from, say, Regulus to remain cool enough to retain its fluorine atmosphere and still expect it to receive a strong dose of UV. But—damnation!—a fluorine atmosphere would probably screen out almost all the ultraviolet light it receives. Very little would reach the planet's surface. Let's be bold, though, and assume that the surface receives enough UV to allow some sort of plant life to split the hydrogen fluoride for us—or, rather, for our lobster friends.

THE planet itself, we've seen, would be cooler than Mars yet warmer than Jupiter: a temperature averaging about — 50°F. Its comparatively low temperature indicates that it could be a fairly large planet, approaching the size of Jupiter (we'll see why later on). Also, it would have to be rather large to contain a goodly amount of an element as rare as fluorine. So we can picture a planet approximately the size of Neptune. Its surface gravity would be about 1.25 Earth's, so our 15-ton lobster would weigh 18.75 tons at home.

Would he really look like a lobster? Could eight spidery legs hold him up? Would a thin external skeleton keep his body from being squashed flat by its own weight? The answers are

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Element	Universe	Earth	Crust
H (Hydrogen)	3.5×10^8	.....	1,400
He (Helium)	1.4×10^7	.....	.....
C (Carbon)	38,000	.....	27
N (Nitrogen)	83,000	.....	3
O (Oxygen)	140,000	38,000	29,500
Ne (Neon)	160,000	.....	.....
Na (Sodium)	490	130	1,250
Mg (Magnesium)	11,000	15,000	870–8
Al (Aluminum)	870	350	3,050
Si (Silicon)	10,000	10,000	10,000
S (Sulfur)	4,300	1,800	.....
K (Potassium)	66	40	670
Ca (Calcium)	690	330	920
Ti (Titanium)	26	18	133
Fe (Iron)	5,400	13,500	910
Ni (Nickel)	380	1,000	.....

The abundances of the elements in the universe at large, in the Earth as a whole, and in the Earth's crust. The number of silicon atoms is arbitrarily set at 10,000 in all cases, and the values for the other elements computed accordingly. Note that the universe is almost entirely hydrogen and helium, with all the other elements forming a small percentage of "impurity;" while the Earth is mostly "impurity." (After Brian Mason)

no, no, and no. Weight, you remember, increases with the *cube* of size. The strength of a supporting structure (legs or skeleton) depends on its cross-section, and therefore increases only with the *square* of size. The lobster's supporting structures must grow faster and bigger than his overall size. His thin exoskeleton would have to take on the thickness of a bunker wall. More than likely, he'd forego a shell completely and develop an internal skeleton. It works better, particularly with large sizes. His legs would have to grow to the thickness of a man's torso. And eight of them would probably just get in each other's way; four would be easier to manage, perhaps two would be best of all. The same applies for his claws. Enlarging them by a factor of 25 would make them impossibly clumsy to wield; our giant would need muscles the size of his own body just to lift them. And as for dexterity, our poor burdened-down monster wouldn't be able to catch an octogenarian, let alone a healthy young blonde.

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Perhaps he'd be better off with a single grasping mandible. To make things simpler (an important aspect of life) we'll locate it centrally, in his head. His broad finny tail—good for swimming—would tend to become long and thick if he lives on dry land.

IF you think our giant lobster now looks more like Tyrannosaurus Rex than anything else, you're perfectly right. Given nearly five billion years in which to experiment and develop, life on Earth could come up with nothing more powerful, nor more monstrous than the Tyrant Lizard. He was the perfect predator. Chances are that even his 200-million-year-old skeleton would scare the wits out of our blonde. So we have a fluorine-breathing Tyrannosaur. Is he made of nucleoprotein and DNA? Yes and no.

Certainly he needs a basic molecular structure that can do all the things that DNA and proteins do. But our type of protoplasm wouldn't last five minutes in a corrosive fluorine atmosphere. Our molecules are essentially hydrocarbons; our monster's would have to be fluorocarbons—combinations of fluorine and carbon. Any sane chemist will throw up his hands and pronounce a life-chemistry based on fluorocarbons is impossible. But he's considering the chemistry he learned on Earth. On a Neptune-sized planet, at temperatures that get down to nearly −100°F, with a fluorine atmosphere—who can say? (If you're wondering about the ability of fluorocarbons to withstand corrosive environments—well, one variety of them, called Teflon, is used on missile nose cones to withstand the incandescent heat of re-entry.)

So much for our so-called giant lobster. The blonde? Since we're being sensible about things, our monster has no interest in her. She's too small for a decent meal, and too revolting to a monster's sense of beauty. Besides, she reeks of oxygen.

* * *

EDITOR'S NOTE: That just goes to show you how contrary life can be sometimes. Our next step, next issue, will be to start hunting through the Solar System for real—not manufactured—extra-terrestrials.

ON SALE IN OCTOBER AMAZING (Aug. 27th) The conclusion of THE DOMAINS OF KORYPHON by JACK VANCE, THE SUN'S TEARS by BRIAN M. STABLEFORD, STELLA BLUE by GRANT CARRINGTON, DOWNFALL by JEFF JONES, REQUIEM FOR APOLLO; LIKE THE SUN IN SPLENDOR by SANDRA MIESEL, SPACE THROUGH OUR FINGERS by JACK C. HALDEMAN II, and many new features.

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FACT

THE MARS SUPPLY FLEET

By FRANK TINSLEY

Servicing our colonies on Mars will call for biennial voyages by specialized fleets of cargo carriers and landing craft.

TRUTH lurks in unexpected places. In recent years, researchers have turned up many a nugget of fact from beneath the seemingly silly facade of man's timeworn superstitions. By now, enough of our folkways have been proven scientifically sound to make the intelligent investigator think twice before deriding the rest.

The list of such discoveries is long. Searching through primitive nostrums, modern medical detectives have uncovered age old "miracle drugs" and some of today's most brilliant theories are found to parallel long despised theses of "old wives' tales." This tendency to find germs of validity in past nonsense holds equally true in space exploration. Recent findings in the field indicate that yesterday's Sunday-supplement preoccupation with Mars and Martians may have had some degree of factual basis.

Mars, from every established aspect of practical space flight and solar system mechanics, would seem to be our number one target for early colonization. Of all our neighbor planets, Mars, most nearly resembles the Earth in physical characteristics and environment. It is almost two-thirds the size of our globe and has a 24.5 hour day. It travels in a more elliptical orbit—almost twice that of ours—and lines up with the Earth every two years. Its distance varies from a maximum of around 60,000,000 miles to a periodic minimum of 34,120,000. This close-in moment of "opposition" occurs every 15 years.

Unlike our Moon, Mars shows faint traces of an atmosphere, water vapor and vegetation. This "air" attenuates outward very

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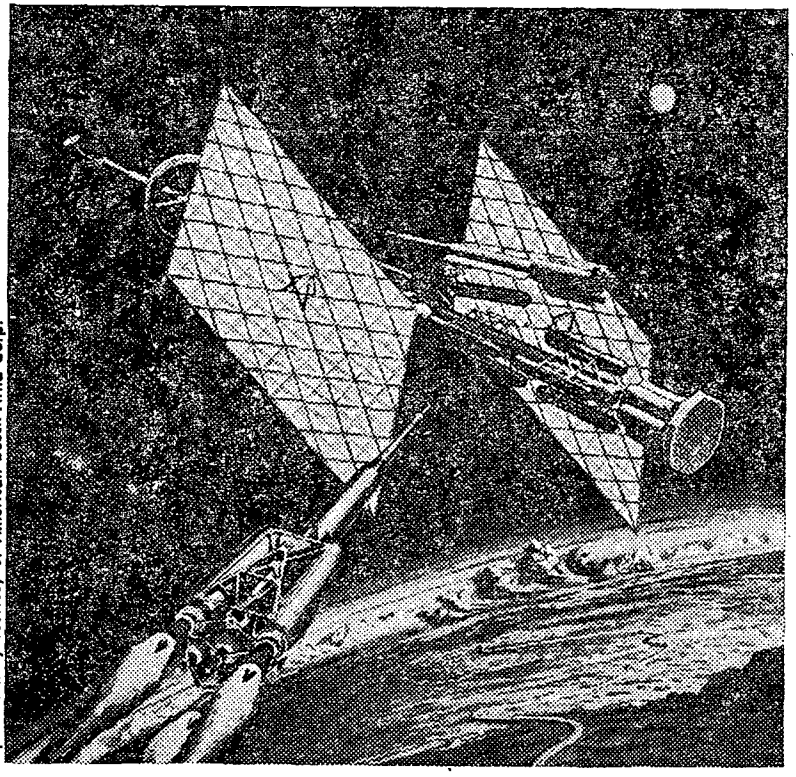
gradually to a depth of about 60 miles, and indications of extensive dust storms have been detected. Surface temperatures run from *minus* 95 to plus 85 degrees, Fahrenheit. Having a Polar "ice-cap" and seasons much like ours, temperate areas are available in which to settle. As on our Moon, it should be possible to extract water from the Martian rock. This can be broken down into oxygen and hydrogen for human use and rocket fuel.

PHYSICALLY, Mars is well adapted to present cargo limitations. Her mass is 0.11 that of Earth and her volume, 0.15. As a result, Martian gravitational pull is only two-thirds of ours. Equipment weighing 100 pounds here will weigh but 36 there. Hence, lighter gear and less rugged buildings will be required. The red planet's escape velocity is also favorable, being 3.1 miles per second as against our Earthly 7.0. This means that



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a space vehicle taking off from a Mars base will require two-thirds less velocity to achieve orbit. It will therefore burn less than half the fuel necessary on Earth to lift each pound of payload. All this adds up to more efficient fuel/load ratios for the landing craft that will shuttle cargo to and from the interplanetary carriers and more economical freight rates to Earth.

As a result, Mars may well be the site of the first planetary settlement. It behooves us to set about developing the necessary equipment to properly service and supply it.

To found and maintain a colony on Mars two basic types of vehicles will be necessary. One is the comparatively small, short-range ferry, launched by a booster stage, that lifts the supply containers from home base to a convenient Earth orbit. Here, they will be transshipped into large interplanetary cargo carriers and trundled across the millions of miles to Mars. At the end of the run, the big ships will go into orbit again and the Martian ferries will rise to meet them. Cargo containers and replacement personnel will be transferred a second time and shuttled down to their destination. This final transshipment is shown in the illustration on page 69.

The ferries used at each end of the trip will not be identical in type. Just as the operating conditions vary on each planet, so will the vehicles. In all probability, the Earth's more severe gravitational force and re-entry problem will require atomic power to lift the loads and slow down the return into the atmosphere. On the other hand, Mars' lower gravity and far less dense atmospheric envelope will permit less powerful and expensive engines. Both oxygen and hydrogen will be locally produceable, so some variant of our new Centaur rocket may prove more practical and convenient.

A three-engine ferry of this type is pictured in the lower center of the illustration. It is designed for the easy transshipment of cargo which it carries in a detachable container, shaped to nest inside the cylindrical center section of the ship. Above this "hold" is the passenger cabin and operating bridge, with a spherical guidance compartment universally mounted in its nose. This tracking unit is fitted with directional radar, an optical telescope for visual pick-up of the target, and full astrogational gear.

The engines, burning liquid hydrogen and lox, are mounted directly below their individual fuel tanks. They are compact units of the new, "plug nozzle" type, equipped with long external

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shrouds to contain the exhaust flow in pressureless space. These protect the adjacent structure from exhaust "ballooning" at high altitudes. Nested between the three hydrogen tanks are the liquid oxygen containers. All tanks are fitted with nitrogen cells for positive pressure feed. A system of inter-linked feed valves permits a graduated variation of thrust in the individual engines. This provides directional control without the mechanical complication of gimbals.

THE engine tanks carry enough fuel for a Martian take-off and the necessary orbital maneuvers—with an adequate reserve to cover misjudged rendezvous. A second set of tanks, built into the supporting hull, contain fuel and oxidizer for the descent. Three landing legs, each designed in a triangular truss of lightweight tubing, fold up against the tank retaining cage during flight. They are automatically adjustable for length and provide a firm tripod base even on broken ground. The ferry ship is simple in overall concept, powerful enough to perform its functions under Martian conditions and able to carry a good load of cargo.

The senior partner of our Earth-Mars Transport System is a horse of another color, both in size and mode of operation. This huge cargo carrier, dwarfing the ferries that service it, is a true interplanetary vehicle. The Mars "Packet" is similar in general type to the Cosmic Butterfly and wind driven Caravel of previous articles. Like them, it is a high-capacity spaceship, assembled in orbit of prefabricated sections rocketed up from Earth. The Packet's salient feature is a pair of gigantic, diamond shaped "wings," pivoted across their center spans on a king-size "axle." These wings are made up of scores of triangular solar-heat reflectors, each measuring 50 feet on a side. Built of metallized plastic film, the sun mirrors take the form of shallow dishes, whose sloping sides reflect the heat-ray back up to their focal-point. There, they converge on a thermionic convertor, mounted on a central stalk.

The thermionic convertor is a sandwich of two differing metals, separated by a tiny gap to form a cathode and an anode. Electrons, "boiled" out of the heated side of the sandwich, flow through an expediting gas or vacuum to the cold side and emerge in the form of direct electric current. A new form of the convertor recently developed by R.C.A. uses an alloy of germanium and silicon and has achieved an efficiency rating of 15%. Company researchers estimate that at 1,800 degrees Fahren-

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heit, each square foot of the new material will produce up to ten kilowatts—enough current to supply three average homes!

The convertor is almost foolproof, with no moving parts to get out of whack. Operating in the high vacuum of space, exposed to the unimpeded heat of the sun's rays, it will reach peak efficiencies and is expected to become one of the major power sources available for space flight.

NOW that the biennial supply fleet is due, let's shuttle up from our Martian Spaceport and take a closer look at the big Packets. As our ferry approaches the orbital rendezvous, we find the fleet jockeying into unloading formation. The sight is magnificent as the shining ships back their huge "sails" and fall into line in carefully spaced intervals. It reminds one of a flotilla of 18th century men-o-war, except that his cosmic squadron is on an incomparably larger scale.

We head for the flagship. On closer inspection, the illusion of an old-time square rigger is replaced by the even more impressive picture of a 20th century space voyager. The seemingly unending acreage of glittering reflectors, honeycombed together in a supporting network of inflated tubing and glass filament rigging, dazzles the eye. Mounted between the wings like the body of a dragonfly, the long, slim hull stretches hundreds of feet from its radar tipped nose, to the broad array of ion rockets in its tail.

Girdling the hull for most of its length are successive rings of bullet-shaped cargo containers, fastened to offset racks. Loaded at an Earth base a year earlier, these sealed cylinders now face their second transshipment, this time for the final jump to their destination. Lying off at a safe distance, we watch the unloading process as a sister ferry eases into position above the big Packet. Spacesuited crewmen attach cables, throw off the restraining bands and hoist the first container into her open cargo hold. With both vehicles moving together at the same orbital speed and in a condition of zero gravity, the operation is far less tricky than it appears. Should the ships drift too close for comfort, a push by one of the crewmen will shunt the ferry off. To reverse the operation, slender nylon cords are rigged to draw them back. Thus, their relative positions are easily maintained.

As our shuttle ship takes its turn in the unloading sequence, we seize the opportunity to board the Packet. We are more than welcome. After a year of restricted company, her crew is glad to see new faces and catch up on the

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unofficial Martian scuttlebutt. The Cargo Chief waves us toward the midships air-locks and, through them, we enter a large spherical machine room. Here are the ship's attitude-control gyros and the twin bull-gears that rotate the wing trunnions.

Parking our helmets and deflating our spacesuits, we step aboard the tiny conveyor that runs fore and aft through the internal holds. This carries us to another spherical chamber well forward—the hub of the whirling wheel of living quarters. Changing cars, we "ascend" through one of the spokes and find ourselves in one of the four "lifeboat" compartments. We are now in an area of familiar Martian gravity with our feet solidly planted on an unyielding floor.

The public rooms and labs are much like those of the Caravel—a smaller version of the standard wheel type satellite. Spinning around the ship's hull at a controlled rate, the pressurized, air-conditioned rim generates a centrifugal force that simulates gravity and permits living under normal ground conditions. During the long voyage the wheel's atmosphere, pressure and gravitational force are altered from that of their point of departure to that of their destination. It is done so gradually as to be imperceptible. By arrival time the crew is able to go ashore thoroughly acclimated.

The astrogation room and control bridge hold nothing particularly new—just the familiar observatory, radar gear and computers that we have seen in previous interplanetary vehicles. Power generated by the thermionic convertors is collected and led to a multi-cell ion engine in the tail of the ship. Here, the addition of cesium vapor converts it into usable thrust. The vapor containers can be seen just forward of the engine face and can be refilled from reserve tanks in the hull. Having no moving parts or mechanical processes, the system is almost 100 percent reliable and the multiplicity of cells guarantees that some will always be in action.

While the total thrust is low, it is ample in frictionless space, and the engine's continuous operation results in a constant acceleration to tremendous speeds. In negotiating a voyage, the ship accelerates up to the mid-point. Then it swaps ends and uses the same power to decelerate to its destination. The initial speed can be built up, if desired, by using a chemical booster at each end. This detachable unit can bring the ship to high velocities in a short time, and as quickly brake it. Thus the Mars Supply Fleet can complete the round trip in a single year. **THE END**

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SCIENTIFIC HOAXES

The Man Who Discovered Atlantis

By ROBERT SILVERBERG

IT is a frustrating thing to be the unimportant relative of a famous man. All your life you are haunted by the accomplishments of your celebrated ancestor. One such man was Paul Schliemann, grandson of the great archaeologist Heinrich Schliemann.

The elder Schliemann was a remarkable man. Penniless at nineteen, he made use of his unusual gift for languages to build a successful business career. By the time he was 33 he was not only a millionaire but was fluent in 15 languages. Archaeology was his great passion, and Homer's Troy his chief obsession. At the age of 46, Heinrich Schliemann retired from business and went in search of Troy.

Most authorities then felt—it was 1868—that Homer's poems were pure fantasy, and that there had never been any city of Troy. Schliemann, with the lines of the *Iliad* blazing in his mind, dug into a hill called Hissarlik in Asia Minor, found not one buried city but seven, one atop the other, uncovered fabulous golden treasures, and forced the experts to agree that he had indeed rediscovered Troy.

Schliemann then went on to excavate at Mycenae, the city of King Agamemnon, and at other ancient Greek sites.

All Europe knew the name of Schliemann. And his grandson, Paul, had only to mention his name, and he would draw the response: "Ah, yes. Are you relat-

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ed to the Schliemann who dug up Troy?" It became irksome. Paul looked about for some way to establish his own reputation but, unfortuntely, he seems not to have had his grandfather's abilities either as an archaeologist or as a scholar. So he made his mark on the world in another way.

ON October 20, 1912, the New York *American*, a flamboyant newspaper, published a long article under the byline of Dr. Paul Schliemann, and headlined, *How I Discovered Atlantis, the Source of All Civilization.*

Paul Schliemann did not claim that he had actually discovered the site of the fabled lost continent. He merely let it be known that he was in possession of definite proof that Atlantis had really existed. Just as men once had called Troy a myth, so too did they still regard Atlantis as imaginary. But Paul Schliemann assured the readers of the New York *American* that he lost continent was no myth. His authority for the statement he said, was no one else than his illustrious grandfather. Paul Schliemann wrote:

"A few days before my grandfather, Dr. Heinrich Schliemann, passed away at Naples, Italy, in 1890, he gave a heavy sealed envelope to one of his closest friends. This envelope was marked: 'To be opened only by a member of my own family, if he pledges himself to devote all his life to the work sketched herein.'

"Only one hour before his death he asked for paper and pencil and wrote with trembling hands: 'Secret addition to the contents of the sealed envelope: Break the owl-headed vase. Study its contents. They refer to Atlantis. Excavate east of the ruins of the Temple of Sais and among the tombs in Chacuna Valley. Important! You'll find proof of my theories. Darkness is coming fast—farewell!'

"He then ordered that this message also be delivered to his friend, who deposited it in the vaults of a French banking firm. After I had studied for several years in Russia, Germany, and the near Orient I decided to continue the work begun by my famous grandsire.

"In 1906 I gave the pledge and broke the seals of the letter. It contained numerous photographs and documents. The first of them was marked: 'Whoever opens this has to pledge himself to finish the work I had to leave unfinished. . . . I deposited a sum of money that will be sufficient to finish the work in a French bank. The money is at the disposal of the person that shows the enclosed receipt."

Paul Schliemann told of his painstaking research. He traced the owl-headed vase among his

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grandfather's huge collection, and broke it open. Inside, he said, he discovered some unusual square coins made of an alloy of platinum, aluminum and silver. There was also a square piece of silvery-looking metal that bore the inscription in Phoenician characters, "Issued in the Temple of the Transparent Walls."

Schliemann pointed out that the inscribed metal plaque was much larger than the diameter of the vase's neck. He had no idea how it had been put inside the vase. There were other curious things in the vase, too: objects made from pieces of fossilized bone and from clay. Many of them bore the inscription, in Phoenician, "From the King Cronos of Atlantis."

ATLANTIS! "You can imagine my excitement," Schliemann wrote. "Here was the first material evidence of that great continent whose legend has lived for ages!" The article went on to say that Heinrich Schliemann had examined certain vases, bone objects and pottery artifacts at the Louvre, in Paris, that had come from Tiahuanaco in the southern highlands of Peru. And, said Paul Schliemann, his grandfather had discovered that the Tiahuanaco relics were identical in every respect to the "Atlantis" relics supposedly found at Troy. The only difference was that the Peruvian material lacked the Phoenician inscriptions that mentioned Atlantis.

By bringing Tiahuanaco into the story, Paul Schliemann added a fresh aspect of mystery. Tiabuanaco is a valley about 13,000 feet high in the Peruvian Andes. It is bleak, nearly treeless, eternally cold. Strange monuments are found at Tiahuanaco. Strangest of all is the Gateway of the Sun, a vast gate standing alone and leading nowhere. It is carved from a ten-ton block of lava, and is twelve and a half feet wide, ten feet high. A doorway cut in its center is surrounded by weird, alien-looking carvings of bizarre figures. Nearby is a triangular stone pyramid, 50 feet high and almost 700 feet along each side. There is also a stone courtyard more than 400 feet square, and a red sandstone figure 24 feet high. All this is eerie and even frightening amid the desolate surroundings.

Modern archaeologists think that the Tiahuanaco monuments are the work of Peruvian Indians who built them before 1000 A.D., several centures prior to the Inca conquest of Peru. But, because of their unusual and almost unearthly style, the Tiahunaco ruins have been the subject of many fanciful theories. Some imaginative people see Tiahuanaco as the site of a settlement of beings from space; others

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claim it is the place where mankind originated; there are those who say that Tiahuanaco once was a Pacific island, lifted to its present great height by some colossal upheaval of the earth. And some thought its monuments were akin to those of ancient Egypt.

Along came Paul Schliemann now to suggest that Tiahuanaco was the place where the people of Atlantis settled after the destruction of their continent. The so-called "Egyptian" features that many people claimed to see in the Tiahuanaco monuments, Schliemann said, could be explained by the fact that some Atlanteans had gone to Egypt and others to Peru. That was why such widely separated parts of the world seemed to have an art style in common

The younger Schliemann claimed that he had devoted the years from 1906 to 1912 to an intensive program of research. He said he had been to Peru and Egypt, to the Mayan ruins of Central America, and to archaeological museums all over the world. He asserted that a Buddhist temple at Lhasa, Tibet, had supplied him with a 4000-year-old Chaldean (Babylonian) manuscript telling how the Land of the Seven Cities—Atlantis, apparently—had been destroyed by earthquake and volcanic eruption after the star Bel fell to earth. According to the manuscript, "Mu, the priest of Ra" had warned the Atlanteans of their fate, but they had refused to listen in time. Only a handful of the doomed continent's people had escaped to Egypt and to South America when the cataclysm occurred.

Schliemann let it be known that he was still at work on the mystery of Atlantis, and soon would publish a book giving further details. "But if I desired to say everything I know," he concluded, "there would be no more mystery about it." The archaeological discovery of Atlantis, he implied, would soon take place—ending thousands of years of speculation and controversy.

THE Atlantis legend itself goes back to about 355 B.C. The philosopher Plato, then in his seventies, was nearing the end of his career. His great teacher Socrates had been dead for 45 years, but Plato had kept Socrates' name alive in a series of literary works, the Socratic dialogues, which used Socrates as a character in dramatic sketches of philosophical debate. Late in his life Plato wrote a dialogue called *Timaeus*, which was set in 421 B.C., when Socrates had been about fifty and Plato himself only a boy. The chief characters of the dialogue were Socrates and two of his friends, Timaeus

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and Critias. At one point in the discussion, Critias tells the story of Atlantis, which he says has been handed down in his family since the time of his great-grandfather Dropides.

Dropides, Critias says, had known Solon, the famous lawgiver of Athens. About 550 B.C., Solon had visited Egypt and had spoken with the priests of Sais, a city at the head of the Nile Delta. Solon had begun to tell the priests some legends of early Greek history, but the priests had laughed at him. "You do not even know your own history," they told Solon. "Your records have been destroyed by fire and flood." Only in Egypt had the true accounts of ancient days been preserved, and the Egyptians knew stories of Athens' greatness in the remote past.

Solon begged for details, so Critias says. The Egyptian priests told him how Athens had been great as far back as 9,000 years before. "Many great and wonderful deeds are recorded of your state in our histories. But one of them exceeds all the rest in greatness and valor." A mighty enemy had come out of the Atlantic, entering the Mediterranean through the Pillars of Hercules (today the Straits of Gibraltar.) These invaders came from an island larger than Asia and Africa put together, called Atlantis.

The Atlanteans tried to subdue Greece, Egypt and all the other countries of the world. "And then, Solon," said the priests, "your country shone forth. . . . Being compelled to stand alone, she defeated and triumphed over the invaders." Soon after this great victory, "there occurred violent earthquakes and floods, and in a single day and night of rain . . . the island of Atlantis disappeared, and was sunk beneath the sea." That explained why the Atlantic was so shallow and muddy beyond the Pillars of Heracles—for lost Atlantis lay just beneath its waves.

SOLON, returning to Athens, had told the story of Atlantis to Dropides, who wrote it down and passed it to his descendants. "My great-grandfather, Dropides, had the original writing, which is still in my possession," Critias declares. And Socrates comments, "This is no invented fable but genuine history."

In a second dialogue, *Critias*, Plato provided some further details about this continent that had been destroyed 9,000 years before his time. It had been, he declared, a place of great splendor and wealth, with soaring palaces and vast canals and majestic bridges. One temple, 600 feet long and 300 feet wide, was entirely covered by silver, and its roof was of gold. Within, the ceil-

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ing was fashioned from ivory inlaid with silver and gold. There were gardens and race-courses and parks, and superb harbors thronged with ships, and wealth beyond measure. And all this had gone to the bottom of the sea in a single day and night.

Plato had simply been telling a pretty story. He had always been a gifted and imaginative writer and, since it had suited his philosophical purposes to speak of Athens' past grandeur, he had invented glorious Atlantis—which he said Athens had conquered. Neither Plato nor the Egyptian priests at Sais had any real information about events of 9500 B.C.; in actuality, Egypt herself had still been a primitive land then, and Athens had been unknown.

The fictitious nature of Plato's Atlantis was made evident by a remark of his one-time pupil, Aristotle. Speaking of Plato and of Atlantis, Aristotle said: "He who invented it also destroyed it." But the appeal of Plato's imaginary palaces and gold-roofed temples was powerful. Gradually Atlantis began to pass from fiction into fact. Plato's fanciful story was taken at face value. The great surge of exploration that began in the 15th and 16th centuries saw many men out looking for Atlantis. Some said that the scattered islands of the Caribbean were the remains of the lost continent. When Europeans reached South and Central America and found the highly developed civilizations of the Aztecs, Incas, and Mayas, the suggestion arose that they had descended from refugees escaping the destruction of Atlantis. That idea took firm hold.

The Spanish *conquistadores* shattered those three great civilizations before much could be learned about them. But one of those who helped in the destruction was Diego de Landa, Bishop of Yucatan. Landa, convinced that the books of the Maya Indians were works of the devil, rounded up all he could find and burned them. He did, however, take the trouble to make a record, inaccurate and confused, of the Mayan alphabet. Landa's book remained hidden away in a Spanish library until 1864, when a French scholar stumbled across the bishop's dusty manuscript. This man, Charles-Etienne Brasseur, immediately tried to decipher one of the few Mayan books that had survived Landa's bonfire.

HE emerged with an absurd-sounding description of a volcanic eruption. It began, "The master is he of the upheaved earth, the master of the calabash, the earth upheaved of the tawny beast (at the place engulfed beneath the floods)—it is he, the

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master of the upheaved earth, of the swollen earth, beyond measure, he the master . . . of the basin of water." Not content with this gibberish, Brasseur provided another scholarly contribution. Going over the Mayan text, he found two symbols for which he could not account. They vaguely resembled the letters M and U of Landa's incorrect Mayan alphabet. Brasseur decided that they must be the name of the land destroyed by the eruption: *Mu*.

All these findings are known today to be nonsense. The Mayan book Brasseur "translated" is actually a treatise on Mayan astrology, not a description of a volcanic eruption. And Bishop de Landa's alphabetical interpretations were mostly wrong, though he did set down authentic Mayan letters.

Brasseur's work, however, inspired another French pseudoscientist to carry the quest for Mu—the Atlantis of Plato—a step further. He was Augustus le Plongeon (1826-1908), a physician who lived in Mexico. Le Plongeon visited the Mayan ruins in Yucatan which had been discovered in the middle of the 19th century. He found pictures on the temple walls of the Mayan city of Chichen-Itza. They struck him as a portrayal of the destruction of Atlantis. Using Brasseurs' translation of the Mayan text, and adding some interpretations of his own, le Plongeon came up with this account of the catastrophe:

"In the year 6 Kan, on the 11th Muluc in the month Zac, there occurred terrible earthquakes, which continued without interruption until the 13th Chuen. The country of the hills of mud, the land of Mu, was sacrificed: being twice upheaved it suddenly disappeared during the night, the basin being continually shaken by the volcanic forces. Being confined, these caused the land to sink and to rise several times in various places. At last the surface gave way and ten countries were torn asunder and scattered. Unable to stand the force of the convulsion, they sank with their 64,000,000 inhabitants 8060 years before the writing of this book."

Le Plongeon also claimed to have found and translated a romantic tale of the love of Prince Coh and his brother Prince Aac for Queen Moo of Mu. Prince Coh was successful in winning Queen Moo's hand, but was murdered by the disappointed Prince Aac, who seized the throne from Queen Moo. Then the earthquake struck, and the continent of Mu went under. Queen Moo managed to escape to Egypt, where she built the Sphinx as a monument to Prince Coh, and founded the Egyption civilization. Other Mu-

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vians reached Central America and became known as the Mayas.

NO doubt the fantasies of Brasseur and le Plongeon were familiar to Paul Schliemann when he wrote his newspaper piece in 1912. He rolled everything into one super-fantasy—Atlantis, Mu, Plato, le Plongeon, the Mayas, Tiahuanaco, the Phoenicians, and much else—and tied it all up by linking it to his grandfather's work at Troy.

Now, respectable scientists had been laughing at Brasseur, le Plongeon, and other advocates of Atlantis for years. But suddenly a man bearing the revered name of Schliemann had appeared insisting he had proof that Atlantis really had existed. The experts were startled. Had Heinrich Schliemann really discovered references to Atlantis during his excavations at Troy? And would Paul Schliemann dare to take his grandfather's name in vain by shamelessly dragging him into a hoax?

The first reaction to Paul Schliemann's article, then, was one of surprise but not of scorn Then the experts began to look a little more closely at the story.

Paul Schliemann's mention of a temple in Tibet aroused suspicion. Many of the wilder proponents of Atlantis had included Tibet in their fantasies, because it was a remote and mysterious place well suited to enhancing an occult story. How had Schliemann contacted the Buddhist priests of Tibet? And where was his "Chaldean manuscript"? The Chaldeans—that is, the Babylonians—of 4000 years ago had not had "manuscripts" anyway. They had written on tablets of clay.

Those coins and plaques made of platinum, aluminum, and silver caused trouble too. Platinum was an extremely rare metal, while aluminum in its metallic form had been unknown until the 19th century. Aluminum would have been virtually impossible for the ancients to produce, and no one could see why they would have gone to the bother of using it for coins.

There were other archaeologists who wondered why Heinrich Schliemann had kept his wonderful find a secret. The elder Schliemann had never been given to secrecy; on the contrary, he had usually announced every important discovery right away, trumpeting it in loud, clear tones. And there were those who thought it odd that no one but Paul Schliemann had ever seen the mysterious platinum-silver coins with the inscriptions referring to Atlantis. Nor did the curators of various museums recollect any visits from Paul Schliemann in the past six years, when he had supposedly been doing world-wide research.

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PAUL Schliemann remained silent while these questions were being raised. That, too, was suspicious. Still, no one branded him as a hoaxer—not yet. The checking went on. One archaeologist, Alexander Bessmertny, went to the man most likely to know the truth: Wilhelm Dorpfeld, who had taken part in Heinrich Schliemann's excavations. Bessmertny wrote to Dorpfeld and got this answer:

"I gladly inform you that I have already been asked about the report made by Dr. Paul Schliemann, though I do not recall by whom. As far as I can remember, I replied at that time as I have to reply to you, too, that Heinrich Schliemann did not work extensively on the Atlantis problem, at least not to my knowledge. I never heard about activities concerning Atlantis from him, although I was his assistant from 1882 to 1890, the year of his death. It is true that we talked about Atlantis occasionally, and I think it likely that Heinrich Schliermann may have collected notes about Atlantis. But I do not believe that he carried out any work on that theme himself."

Now was the time for Paul Schliemann to come forth with solid proof: the coins, the inscribed plaque, his book on Atlantis, anything. But he maintained his silence. He had nothing at all to say. The game was up. Goaded by his need to seem important, he had invented the whole story out of thin air. He had no proof. His book never appeared. This pathetic man had had his moment of public attention; for a brief while his name had been on people's lips as once his grandfather's had been. But then he vanished into the obscurity from which he had come.

The lost continent of Atlantis remains lost today, though the noisy followers of le Plongeon and Brasseur still think it will be discovered some day. If Plato, who loved truth above all else, had known what men would make of his airy fable, he quite probably would never had set it down for the gullible to read.

THE END

ON SALE NOW IN SCIENCE FICTION ADVENTURES THE MACHINE THAT SAVED THE WORLD by HUGO AWARD-WINNING AUTHOR, MURRAY LEINSTER, plus INTERSTELLAR FLIGHT by BEN BOVA, THE SMART ONES by JACK SHARKEY, SAVAGE WIND by HARLAN ELLISON, HOMESTEAD ON VENUS by LESTER DEL REY, SMALL MIRACLE by RANDALL GARRETT, THE NURSERY COMMANDOS by ADAM CHASE, THINK YOURSELF TO DEATH by C.H. THAMES, and WORLDS AT WAR by ED EARL REPP.

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A TIME TO DIE

By HAROLD CALIN

Illustrated by FINLAY

Capt. Kingsford cleaved the depths of space in a monomaniacal search for his personal devil. The tale of what happens when he finds it is reminiscent, on a cosmic scale, of Moby Dick. For every man like Kingsford, is there a white whale?

HEROES are not brave men; they are the fortunate victims of circumstance. They perform an act in life for which one usually pays with that life. But they do it with an unusual out-

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come. They do not die. So they are heroes. Captain Robert Kingsford returned alive from the first expedition to Aldebaran IX. He returned alone. He also commanded the second expedition. I was, or perhaps I should say, still am executive officer on this second expedition. If there is ever a third expedition here, Kingsford will not be the commander. This time he did not become a hero. He became a very stupid, very dead man.

I finished my fourth tour of duty in S Force about nine years ago. The third and fourth tours, as you know if you are familiar with S Force, were voluntary. Two is the limit they figure a man should spend in deep space on assigned duty. By the third, if he has not achieved a command, or rank at the least, he might be somewhat loathe to spend three years on a cruise not of his own choosing. After my fourth tour I sat for exams and got my captain's papers, so I signed on for a two-tour contract with an outfit operating Star Class Scouts out of Alpha Centauri X. By the end of this contract, I'd had it with space, and I settled down to a nice life of ease. You know, fishing and a house by the sea in the tropics, and a boat. That, of course, is where I made my mistake. You don't break the habits of over twenty years merely by putting some idle wishes into fulfillment. I reflect on it now because that idiotic notion about retirement is probably why I am here. That, and the determination of Captain Robert Kingsford to be a hero again, with remaining witnesses to bear him out.

I spend so much talk on myself at this point, incidentally, because I have lots of time in which to do this. Time to do anything I please, as if there was anything to do beside this. Except for the periods of hiding, of course. The hiding isn't bad, either. One gets used to it.

I've done this thing, this writing it all down, though it is on slates with a sharp stone as a stylus, about fifteen times. I've never found traces of the other times I've written it, and somehow I feel it should all be down. In the beginning, just to express one's thoughts, even in writing, was enough. After a while, however, you sort of want to talk with someone, even if there is no one to talk with. I guess I've told myself this thing about a hundred times, in addition to the writings. It's changed a bit with the tellings. Also, I've never quite finished it. So actually, I'm creating the epic saga of a race. A race of which I am the sole member, and with no heirs apparent.

Well, it makes the time pass.

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I, Philip Rogers, known as "Buck" to my less imaginative and non-spacemen acquaintances, decided to have done with retirement on Barbados after three years of the kind of living toward which all men strive. I had resided and dined in opulence, I had fished, I had traveled within the confines of atmospheric craft and I had seen the whole world. But living for itself, just as survival for itself, can be pretty well the same as death, and believe me, I can deliver virtuosic discourses on both subjects. Both tend to instill a certain cessation of all feeling. For that reason, incidentally, I've actually grown to look forward to the periods of hiding here. It's the only time I truly feel anything. But to get on, I got pretty well fed up with Barbados and the boat and the house. I had never married, principally because I'd never been fond of the idea of a woman standing on some widow's walk" waiting for me. Three year cruises in deep space were hardly the short business trips of a commercial traveler. I had also, I imagine, never met the right woman. When I realized that this tropic paradise was becoming little more than a sort of waiting room for the voyage to hell or wherever I'll go, I began to cast feelers into the only other world I knew. I made certain inquiries among commercial space outfits for the possibility of a berth. I had let my papers lapse and learned that I was no longer eligible for a command. This was no great loss to me, since doing something was the primary objective. I could still gain an Exec's berth on any non-atmospheric craft. I reactivated my status, got my First Officer's papers, and was about to sign on for a mining expedition in the third asteroid belt of Alpha Centauri, when Kingsford completed his solo return from Aldebaran IX.

Basing speculations on the future profits to be had from Aldebaran IX, according to Kingsford's report, Anglo-Galactic Mining began almost immediately to outfit a new ship for a second expedition. I heard a bit of Kingsford's story, the landing, the surveys, the planet being almost a total ore deposit, and then the tragedy of the crew. One of Anglo-Galactic's geologists told me Kingsford's tale of how all of his crew was killed by being drawn up in the feeding action of some gigantic flying animal, how he alone had managed to avoid this horror, and his agonizing fourteen month voyage back all alone.

I thought I was well able to imagine the feeling of being a sole survivor on an alien world, let alone the almost superhuman task of activating a ship's drive,

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even with delayed action timing, and plotting a course and manning a craft through fourteen months in space alone.

They were recruiting a complete crew for Kingsford's new ship, the Algonquin. She was new throughout, the drive and astrogating equipment being of a design with which I was unfamiliar. I began to understand why I was no longer eligible for command. A short three year absence and space technology had passed me by. I had read about the Shaller drive system in a technical journal during my retirement, but all through those three years I had made a rather strenuous effort to stay away from anything to do with my former calling. Actually, the Shaller system had outstripped all former star drives and was now in almost exclusive use in all ships geared for long range space penetration. It had conquered inertial resistance to the point where there existed absolutely no problems or stresses to either craft or personnel during acceleration and deceleration. If Kingsford's report about Aldebaran IX were true, and assays of the ore he'd brought back seemed to promise even more than he did, a berth on the Algonquin would be quite a prize. I flew to London and arranged a preliminary interview with an Anglo-Galactic vice president whom I had known for years. This would take some politics. From what I could figure, an Executive Officer's berth on the Algonquin, if she should make the strike that seemed imminent, would be worth millions, at the one-twentieth share normally apportioned to Execs on exploratory mining expeditions.

"Naturally, Kingsford will command," I was told. "But if you've a rated Exec's papers, Rogers, I think we may swing it." It would mean ten percent of my share, but the requisite of portions of officers' shares is one of the fringe benefits enjoyed by executives of corporations like Anglo-Galactic. There were two others with Executive tickets being touted by other politics within Anglo-Galactic, but my past record, my S Force dossier and my age were tremendous determinants. Or, perhaps, my politics were stronger. I was chosen and signed on for the expedition. I had still not met Kingsford. This was a bit odd. After all, I was to be his executive officer, his immediate subordinate, and I had not even been requested to present myself for his appraisal before selection.

AFTER signing the contract, I was given a manifest of the ship, a complete set of drawings, and a small library of technical data for brushing up as well as

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familiarizing myself with the Shaller system theory and everything else that had rendered me somewhat obsolete during my retirement.

I came aboard ship three days before departure, still not having met any of the crew, let alone Kingsford. I was greeted by a junior Officer of the Day.

"Rogers," I said. "Philip Rogers. I'm the new Exec."

"I'm Williams," he said. "Welcome aboard the Algonquin, sir."

"This is quite a ship. A bit more than I'm familiar with."

"She's a bit more than most of us are familiar with," Williams said. "Isn't she a beauty?"

"I hope she shakes down without too many kicks."

"Yes, sir. Captain Kingsford is expecting you."

"Is he aboard?" I asked.

"Yes, sir."

I rapped on the hatch, and as I entered his cabin the captain rose to great me. The first thing I noticed, was the eye patch. I had seen photographs of him taken since his return, but he had worn no patch then.

"Mr. Rogers," he said and extended his hand. "Welcome aboard."

He held his face slightly to one side, as if to give his one seeing eye as full a field of vision as possible. He noticed my preoccupation with the eye patch.

"I traveled fourteen months with a big hole here, Mr. Rogers," he said, motioning toward the patch. "I left my right eye where we are going." Then he closed his good eye and was silent for a time. I grew to accept these silences during conversations with him. "They fitted me with a false one when I returned, but advised against my wearing it in space. It's just as well. It gave me bad headaches. The patch is the same, but I don't feel a solid object lodged in my head. This is much better. Well, Mr. Rogers, what do you think of the Algonquin?"

"She's quite a ship, the little I've seen, sir."

"Yes. Mr. Rogers, I am a man disinclined to consorting with my crews. Your main duty aboard will be to convey my orders and requests to the crew. For all intensive purposes, you will appear to be in command. I suppose you have been well briefed on the purpose of this venture. If we succeed, and we shall, you will return a very rich man."

"I already am pretty well off," I said.

"I did not say pretty well off, Mr. Rogers. I said very rich. But, be that as it may, you have the look of a good officer about you. We'll get on, I'm sure."

"I hope so, sir," I said.

"You've had your own commands, Mr. Rogers. It's one of

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the reasons I'm glad you're with me. You are familiar with the problems of command. How is it that you were so lax as to let your papers lapse? Your command record is excellent."

"I was retired," I said. "I didn't think I'd ever need them."

"But the old habits do not die, do they?"

"I guess you can put it that way."

He looked at me and was quiet for a time. Then he looked up. "Have you ever felt, Mr. Rogers, that the whole of the universe was put together wrong? That perhaps man was placed here to undo some of God's bad work? Have you? Have you ever wished that all your life could be different? Have you ever seen evil? True evil, or its absolute personification?"

"I may have," I said. "But I've done well not to let my imagination run too rampant at times like that."

"Mr. Rogers, do you know how I lost my crew on the Essex?" The Essex had been Kingsford's command on the first expedition to Aldebaran IX.

"I've heard bits of it," I said.

"Aldebaran IX is a very strange planet. The atmosphere is extremely dense, entirely breatheable, you understand, but dense almost to the point where you could compare it to water. The atmosphere is a true ocean of air. The surface of the planet has barren areas, trenches, shelves, sections of almost jungle-like undergrowth, and a very hazardously deceptive feeling of warmth. It has no intelligent life. But it does have life. I can assure you of that. It has life. I experienced some of its life." Here, he paused again. When he resumed, his thoughts had gone beyond the life of Aldebaran IX. "Every ounce of matter on that planet contains the highest percentage of ore my counters have ever recorded. Ore, Mr. Rogers, the Ultimate Ore. The ore for which forty-two men under my command died. I intend that the dependents of those men will reap the benefits of that ore. I have instructed that my entire share be distributed among these heirs. This bit of information is to go no further than yourself, you understand."

"I understand," I said.

"Mr. Rogers," he then said, "were any of your past commands of a military nature?"

"How do you mean, sir?"

"Well, on an alien world, for example, have you ever organized a tactical reconnaisance progam? Or perhaps planned a system of self covering defense positions?"

"Naturally," I said. "Military sciences are a large part of S Force operation."

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"This I know, Mr. Rogers. But have you ever put these sciences into practise?"

"Yes, sir," I said. "May I ask why you wanted to know?"

"No, Mr. Rogers. But it is very good to have you aboard. Thank you, Mr. Rogers." He turned his attention suddenly to a manual on his desk. The interview seemed to be over. I left.

WE spent the next few weeks at the Lunar base undergoing extensive testing. Finally the ship was ready for commissioning. Kingsford appeared to accept command and we lifted from orbit, locked into the pre-taped course and set about the business of a crushingly inactive fourteen months of transit.

In all that I have written of the Algonquin incident, I have tried to portray Kingsford correctly. I don't know yet as I have succeeded. He was almost a complete recluse aboard ship. I virtually commanded, as he had predicted during our first conversation. When I did see him, it was to deliver routine reports on the ship and crew, but I began to observe that even these reports did not particularly interest him. He had stopped shaving and had grown a long, very full dark beard. That, together with the eye patch, gave him the look of a very ancient mystic. He was always reading when I entered his cabin. His readings were restricted to the writings of St. Augustine, *The City Of God* I believe the volume was, and one or another of the first books of the Old Testament. After about nine months of my routine monologues, I stopped reporting altogether, and didn't see him for about three weeks. Nor did I receive any summons from him.

Then, during one of my periods of watch in the control room, I received a signal to report to the Captain's cabin. I entered, observed that despite his solitude the cabin and every accessory was in perfect order, nothing out of place. I knew that he allowed no orderly to enter the cabin, and yet there was no evidence that here was a man who was virtually a prisoner of his own choosing. We spoke for many hours that time. He asked about my past, my period of retirement, my reading habits, what I had read and what I thought of these readings. The conversation was limited almost entirely to myself, but Kingsford as an entity began to emerge for the first time since I had met him. He was altogether friendly. He wanted to know whether I was familiar with the Bible. When I said I was, he asked which section interested me most. I told him Ecclesiastes.

"Why Ecclesiastes, Mr. Rogers?"

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"Well, because it seems to pretty well sum up all of life."

"There is far more to all of life than just vanity," he said.

"There is also far more to Ecclesiastes than just vanity," I said. "But I do imagine one could speak of purposes in life, and all of that. But aren't these in themselves a sort of vanity? Actually, we're not put here for any real reason. I don't think so, anyway. I've always felt that man is quite the master of his own destiny."

"And yet, Mr. Rogers, here you are," he said, smiling now, "aboard the Algonquin, after having quite conclusively decided that a life of grace and leisure was your true destiny. Do you not believe that perhaps your whole life was destined for that of a space officer? Perhaps molded from the very moment you were born to serve as my Executive Officer during this expedition?"

"I prefer to believe that I had stronger politics with Anglo-Galactic than the others who were after this berth."

"Do you really? Well, that's interesting enough. And tell me, Mr. Rogers, what of the crew? Do they still hold your faith to the last man?"

"I've seen enough men in enough situations to know that one cannot vouch for every man, even for himself, Captain. I still believe they are a good enough crew, yes."

"Good enough for what?"

I looked at him, smiling. "I believe that was actually a question for me to ask you."

"You think so? Perhaps. But, nonetheless, have any of them lost faith in Aldebaran IX?"

"I think it would be wise for you to address them and judge that for yourself," I said. "At this point, Captain, it's no more than any man aboard deserves."

"Nobody deserves anything, Mr. Rogers," he said firmly. "Don't you forget that. Keep them busy, Mr. Rogers. They shall have their wealth. Their speculations on that wealth is all that need concern them. And I shall have mine."

"Do you intend to address the crew at any time before we reach Aldebaran IX?"

"In good time, Mr. Rogers," he said. "In good time."

THAT was very much the way it went, Kingsford sticking to his cabin, reading his Bible, and the men occupying the monotony of space penetration with conjectures on their futures and on Aldebaran IX.

It took four more months to raise Aldebaran. When we ran onto the range of Aldebaran, things grew a bit tricky. There were no truly accurate charts, no perfectly matched coordinates for

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absolute bearings, only the tape of the Essex's astro-officer to trail in on. We set the tape and locked the controls in on them and turned all the scanners up full. We proceeded at ten percent power, gradually drawing in on the solar system of the red star, setting a solar orbit and drawing in toward the nebula of its system. Here, the Essex's tape became useless. They had made eight approaches before striking a parallel orbit, had not recorded the orbital timing of the various outer planets of the system, and had sort of felt their way into the ninth planet. We would be obliged to do the same thing. Throne, the astrogation officer, took over control and eased the Algonquin down, decelerating gradually over a period of seven hours. He then brought us to a complete halt and looked up at me.

"We'll have to go back out and start over, sir," he said. "I have insufficient data to bring us through correctly. It might take weeks. I don't understand how the Essex made it. Probably a big piece of luck."

We lifted out of the solar plane and set the computers to coordinating positional data on Aldebaran's system. This time, the Essex's tapes were unnecessary. Throne plotted an exact course, determined to strike the ninth planet at the apogee of its orbit. None of Aldebaran's planets, incidentally, hold anywhere near a circular orbit. There are six belts of what can be classed as asteroids. These were very likely planets, or pairs of planets, at one time, but before the multi-rhythmed cycle of Aldebaran's system established itself, these planets ceased to exist, through what cataclysmic collisions I could not even begin to imagine.

We struck an orbit about Aldebaran IX without fault, and Throne returned command to me. There was a general announcement made throughout the ship that we were in orbit about the objective planet and shortly thereafter, the voice of Captain Kingsford, for the first time during the voyage, came over the communications system.

"Attention. This is Captain Kingsford speaking. Mr. Rogers will supervise the locking of all controls into this orbit about our objective, and members of the crew will assemble on the main deck. I wish to address you. My compliments to Mr. Throne on a fine piece of ship handling in this rudimentarily charted area. Thank you, Mr. Throne. In ten minutes, then, gentlemen." The men all looked up, as if suddenly reawakened to the fact that there was an officer aboard who was my superior.

"Well," I said, "I guess you'll now meet Capt. Kingsford."

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WE secured into orbit and made our way to the main deck. It was the first time in well over a year that all the men were there together, the first time since the commissioning ceremony. I remember now that I thought for a brief instant of how few of the men I had actually spoken more than several words with, how taut and almost mechanical this entire trip had been, how the crew held a common bond as in other ships, but not of friendship as on other ships on which I had served. Here it was an alliance against the unknown. The unknown, represented not so much by Aldebaran IX, but by Captain Kingsford.

He entered the main deck through the hatch from the officers' quarters and all motion and sound among the crew stopped. He walked silently to the center of the deck, nodded briefly at me, and turned to face the men.

"Here are the facts on Aldebaran IX as I know them. The assays performed on the ore I brought back display a potential yield of almost ninety percent pure uranium. Ninety percent, gentlemen. You are, I am sure, aware of what this can mean for every last one of us. The extraction of this ore amounts to little more than erecting loaders on almost any site, and automatic conveyors to the refinery we will assemble for reducing the ore to a pure state. Our reaction engineers will then convey the element through the reaction process by which we will return to Earth with a hold filled with true plutonium. This is almost an automatic procedure and can be accomplished with an absolute minimum of operational difficulty. You will ask, then, why I requisitioned a manifest of so large a crew. The answer to this is precaution.

"There is a manner of animal life on Aldebaran IX which it is necessary that we subdue. It is a form of flying animal, quite large, which feeds through a suction action, ingesting matter with tremendous force, as it flies. This action not only nourishes the beast, it also forms the fuel for the ejection of waste gases that are its power for flight, jet propulsion, in essence. The animal is omnivorous, quite fast in flight, and leaves an area barren in its trail. It also defies all manner of remote observation. It came upon us in the Essex completely by surprise, though all our scanners and force beams were activated. It was the cause of the death of the entire crew. I alone was inside the Essex at the time. I escaped with the mere loss of an eye. How I managed to be the one to survive I cannot say. Perhaps it

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was fated that way. But, gentlemen, had we been prepared, had we been firmly entrenched and adequately armed, this beast would have presented no threat at all. We were not prepared then. Now we are. You are probably all familiar with the arsenal manifest. It was for this reason that I ordered the arms we now have on board.

"There has never been a reward without a hazard for men to face. This, then, is our hazard. And I assure you, no man has ever been within reach of so vast a reward. Is there anything else I can tell you? Mr. Rogers will establish a manner of arms distribution and a system of defense positions once we make landfall. We will bring the Algonquin down on a site I have already determined. The site where the Essex met her fate."

Here, Kingsford stopped speaking. Several of the men shifted slightly. There was some clearing of throats, but no voices.

"Are there no questions, then?" Kingsford asked. Again, no one spoke. Perhaps they were awed by the sight Kingsford presented. He had been seen by no one on board since the commissioning but myself and a junior officer who piloted the shuttle at Alpha Centauri X. They knew him without the eye patch or the beard. He seemed to have aged twenty years since the departure. He had worn the false eye during the commissioning ceremony, and now, with the eyepatch and the beard, his face was darker, his expression pained.

PERHAPS the men chose to accept Kingsford's optimism in the face of the fate of the Essex, considering that they were now in orbit about Aldebaran IX, and little more could be done but effect a landing. Anything else could constitute mutiny, and the alternative was the fortune Kingsford promised each man.

"Good," Kingsford said. He smiled. "Now, as you might imagine, I have a personal interest in this animal we will hunt." He motioned to the eye patch. "I left this behind me last time. Not to mention a crew of forty two men." Here he paused in the way I had grown to know. His eye again focused on no particular object. After a time, he continued. He drew a paper from his tunic. "This, Mr. Rogers, is to be posted where all crew members can read it. I believe it will explain itself. Post it after we land." He handed me the sealed paper.

"Gentlemen," Kingsford said, "I thank you for your service. Are you with me in this business of Aldebaran IX and its flying animal?"

He smiled broadly. The men looked at one another, then slow-

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ly began to smile. Pierce, the armorer, made his way to Kingsford, his hand extended.

"Sir," he said, as Kingsford grasped his hand and shook it, "it's been too long since I've been on a good hunt. I'm with you all the way."

"Good," Kingsford said. "You are Pierce, am I right?"

"Yes, sir."

"Thank you, Mr. Pierce."

That started it. The crew moved in on Kingsford, all shook his hand and pledged to do their share. After a long while, the camaraderie quieted down, and Kingsford excused himself, requesting Throne and me to join him in his cabin.

Kingsford sat down behind his desk and drew a chart from a file. He slid it across the desk so that Throne and I could see it.

"This is a photographic chart of one hemisphere of Aldebaran IX, gentlemen. I have marked the area in which the Essex was operating. There are many landmarks which you can use for triangular bearing to establish the exact position of the site. These are also marked, as you will note. Prior to the Essex landing, we dropped shuttles at many random points about the planet and drew cores and meter readings. This area proved to possess the greatest density of high percentage ore. It seems natural that we light here again. Do you have sufficient data here, Mr. Throne?"

Throne moved the chart closer to himself and studied it quietly for a moment. "I should think so, sir," he said. "This red marking, here. Would that indicate a mountainous area?"

Kingsford leaned over the chart. "Yes," he said.

"Good," Throne said. "Then I understand the markings."

"Is there anything else I can tell you?"

"No, sir. This chart seems complete enough. I'll have the ship dropped from orbit and scan the surface. We should be able to pick up check points to match the chart all right."

"Or you can activate the counters, Mr. Throne. This ship is equipped with long-range equipment. The point of highest incidence of count will be your mark."

"Yes, sir. Will you be at the controls?"

"For the landing, yes. Mr. Rogers and I will be in the control room shortly."

"I'll get to this immediately, then," Throne said.

He left the cabin and Kingsford shifted his gaze to me. "You seem disapproving of my methods, Mr. Rogers."

"Not really, sir. Just your timing. You can hardly call it fair to have kept to yourself during all these months."

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"Perhaps, but remember one thing, Mr. Rogers. You have been my buffer during all these months. You are a conspirator to the silence. I think that my address to the crew brought them very much over to my side, don't you?"

"They haven't had time to think," I said. "Or maybe they don't know how to, or prefer not to. They might wonder why you waited until now to tell them about your hunting plans. They might begin to feel, much as I do now, that this whole trip should never have taken place."

"No, Mr. Rogers. It had to take place. It had to."

"Why?"

Kingsford didn't answer right away. He looked at me quietly for a time. Then a slow smile spread across his face.

"For the betterment of mankind, Mr. Rogers," he said. "You see, I believe that the crew of the Essex met a fate that was destined long before preliminary surveys of Aldebaran IX were even projected. Before, even, men developed the power to travel into space. It was a warning. That is my belief, and my faith."

He was interrupted by the communications buzzer. They had scanned the planet and matched the chart. Throne had located the landing site and we were awaited in the control room. We both stood.

"I take it, Mr. Rogers, that you are not with me in this Aldebaran venture."

"I am Executive Officer aboard this ship, Captain. I know the meaning of performing my duties. But if you are looking for moral approbation in all of this, I cannot give it. The way I put it all together, I think it would be less a waste if we were to raise ship right now and set a course directly for Earth."

"Why? Are you afraid, Mr. Rogers?"

"No. It's just that I'm not given much to the idea of playing God."

Kingsford stopped at the door. "I seem to have underestimated you, Mr. Rogers," he said. He opened the cabin hatch and stepped through.

THE setting down went off without a hitch, and the job of establishing Kingsford's precautionary system began. I was the first out of the ship, meeting the density of the atmosphere for which Kingsford had prepared me. It was thick, yet not oppressive like the heavy tropical atmosphere on Earth. It did not restrict movement, the gravitational force being less than that of Earth. One seemed to counterbalance the other to give a man equal physical capabilities to those on Earth. With Pierce, I scouted the area within a few

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miles of the ship, chose certain high grounds for emplacements and watches, then returned and began the deployment of the arms and crew to the chosen spots. I worked out a schedule of rotation so that the outer emplacements would be manned for no more than three hours by any one group. During this entire operation, there was no sign of animal life on the planet. The climate seemed sub-tropical and vegetable life proportional to this climate abounded. Fruit trees and plains of grass, forests and spots of dense undergrowth, much like the greenery of a dozen planets I had seen. But there was no sound, and absolutely no discernible movement of air. The mountain chain I had seen noted on Kingsford's chart stood off in the far horizon, and the land about us was all rolling hills and plains.

During the apportioning of arms, I remembered Kingsford's paper to be posted. I got it from my cabin and read it. It was a public statement in which Kingsford offered ten percent of his captain's share to the first man to spot the quarry. This reduced the potential benefits to the heirs of the Essex's crew by ten percent. I noted the fact, but gave it little thought. It was Kingsford's affair. I opened the general communications switch and read the statement to the crew. The response was electrifying. Shouts and cheers from every quarter of the ship. The general air of a group of sportsmen on a chase rapidly took over the whole feeling of the expedition, and, as executive officer charged with posting the watch, I was approached by most of the crew members with entreaties and even bribes by each, to be assigned to the outermost emplacements. Kingsford's methods certainly bore results. It kept everybody from thinking, but I do not believe that this was his intention.

I did not see Kingsford for almost two days. While I busied myself with the elaborate mechanisms of warning and defense, he and the small group of geologists and reaction engineers, who also insisted on drawing guard duty, went through the mechanics of erecting the loaders and converters, then the refining equipment for reducing the ore to its pure state, and the reactor that would further refine the prize to its absolute, the purpose for the whole expedition, a cargo of plutonium such as man had never seen.

During the two days of setting up the defense system, I grew to feel quite comfortable on Aldebaran IX. I roamed the hills and depressions, brought back certain fruits and vegetables and subjected them to tests and dis-

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covered that they were entirely palatable. Perhaps these pastoral musings were a premonition on my part or simple scientific curiosity. I have never dwelt too long on it.

The planet cycle of Aldebaran IX is relatively short, about seventeen hours as measured on Earth. We grew accustomed to relatively short, but intensive periods of work and the remainder of the time was spent in sheer luxuriance at the idea of being out of doors after so many months in space. No sign of Kingsford's quarry appeared, and the excitement of the hunt began to dwindle somewhat among the crew. I, myself, lost much of my feeling of apprehension, and began to relax in the foretaste of future wealth. The reactor was completed on the second day, and the production of the man made element began. The second night, I dined with Kingsford.

AS my tension had relaxed, quite the opposite, it seemed, had happened to him. He was more brooding than ever, more responsive to the slightest sound. He ate practically nothing and said little. Late in the evening, he began to speak, seemingly for the first time aware that he had a guest.

"You wonder about my monster, Mr. Rogers, don't you?"

"Yes. I do wonder a bit."

"So do I. Do you still think it would be less waste if we had returned without making landfall?"

"I'd imagine it was a bit soon to say."

"Do you understand now, Mr. Rogers, why I maintained my silence about this place? Why I spoke little of the Essex and her crew? You have noticed, I am sure, that absolutely no vestige of either the crew of the equipment is to be seen. Only a newly green pasture where there was a desert when I escaped. Such is the devastation to which we might be subjected, except for your excellent defense pattern. A devastation so complete as to leave no sign of devastation whatsoever. Have you ever seen anything like it, Mr. Rogers?"

"No."

"This," he said, indicating the eye patch. "This is the only sign that forty-two men perished within five kilometers of this spot. And I have returned now. Now the waiting."

"I don't understand." I said.

"I told you once that I believe all this of Aldebaran IX was fated. I believe also that Aldebaran IX was so composed of uranium to be found and exploited for the complete betterment of mankind. That is the irony. For two hundred years, now, we have spoken of unleash-

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ing the atom for the betterment of mankind. But what more has come of it than a highly developed science of the destruction of mankind, and the gradual debasing of the entire universe. Man must warrant his own betterment, Mr. Rogers, and it is therefore that Aldebaran IX was placed well within the reaches of Hell, a very deceptive Hell, but Hell no less. Man was meant to have achieved god-like proportions before he would discover this place. The men of the Essex were not god-like, believe me. Nor are the men of the Algonquin. Nor are you.

"Aldebaran IX is a world not meant for men to walk upon. It is a disguise. There are gardens and deserts, jungles and plains. But there are no oceans. The ocean here is the atmopshere. Should I have told the men of the Algonquin that in this ocean swims a Leviathan that defies the very existence we claim, Mr. Rogers? This is our adversary. This is the killer of the crew of the Essex. This is the sum total of man's stumbling blocks, his barrier to his own betterment. A giant, half the length of the Algonquin, almost its girth, with eyes each as large as a man.

"Kill him, Mr. Rogers, and you have conquered man's evil. You will see him. You will see why this had to be."

I could say nothing. I believed then that he was more than a little mad, but he had instilled a strange fear in me. I wanted to be away from all of this. I wanted no part in this undoing of man's evil.

"I can only say that I feel that a man should be given a choice of participating or not in this madness," I said, the words sounding very dry and brittle.

"No, Mr. Rogers. No. Give man a choice and he will refuse."

" I must go now, Captain Kingsford. It's time I made my rounds of the emplacements."

"I'll join you, Mr. Rogers," he said, and we left the ship together. I never entered the hatch of the Algonquin again.

WE spent the entire night covering the perimeter of the defense positions. The emplacements were spaced at about half-mile intervals, each covering the other, and each manned by two of the crew. We had armed each position with a fixed base nuclear rifle of recoilless design, as well as small arms for the individual men. The night was pervaded by a heavy silence, broken only by the distant humming of the refinery and the reactor. The men at the emplacements spoke little. The spirit of the hunt, as I have said, had dwindled, but there was a feeling about this night that hung over all of us.

Along toward first light we

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were heading back into the center of the camp, having completed a full circuit of the perimeter on foot. The suits we wore were light enough, despite the helmets we needed for communications, but there was still the feeling of restriction, even without the face plates. I was tired. I had gone almost twenty hours without sleep. As we walked, Kingsford held a hand to his head just above the eye patch. He had a headache and his good eye was red. He stopped a moment to rub the eye and take a cigarette from a packet in his tunic. He offered me one and struck his lighter so that we could light the cigarettes. Suddenly, he held his hand very still.

"Look, Mr. Rogers," he said. "Look. The flame. How it flickers. The air is moving. The air is moving, Mr. Rogers."

I turned my head up automatically, but detected no change in the stillness. Kingsford studied the flame and began to smile. Then my headset came alive with a voice.

"Captain. Captain Kingsford. This is Pierce. It's blowing up a breeze here. It's becoming a wind as I speak. The sun has not quite risen, but it's almost light enough. I don't see anything, but I feel the wind. It's stronger each second."

We could feel it now. Gradually at first, then stronger, the air began to stir and move in the direction of Pierce's emplacement. Other positions began to report the movement in the air. Then the first light of Aldebaran broke over the horizon in a brilliant red glow and we heard Pierce again.

"I see it," he called. "It's like a ship. It seems bigger than the Algonquin. Captain, it's moving toward us, but not directly at us. I make the distance to be about seven miles, but I can't be sure. I don't know how big it is. What's its size, Captain?"

"Has it a long snout and sort of a funnel at the front?" Kingsford demanded.

"Yes, sir. It's moving very fast and there's a cloud rising before it, and the cloud is disappearing into the funnel. I can hear it now. It must be closer than I thought. Lord, it's huge. The wind is much stronger now. It's getting difficult to breathe."

"And the eyes, Pierce. Can you see the eyes?"

"No, sir. But we can't breathe too well here now. It's coming closer. Closer."

We could see it now. It was moving in a direction generally toward the camp, but if it maintained its course, it would bypass us by a good distance. It was huge. Much greater than Kingsford had described, at least so it seemed. Slender at the front

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and tapering to a huge girth near its tail. A great billow of dust rose before its path, disappearing in the bugle-like snout. The wind increased far beyond any I'd ever known, and then I could see the eyes.

"You see, Mr. Rogers," Kingsford shouted. "It has expected us. It is grown. Six times its size, Mr. Rogers. The men of the Essex nurtured it well. Ha!"

The men at all positions were calling over the communications, but none had fired their weapons yet.

"Commence firing," Kingsford shouted his order. He turned to me. "There, Mr. Rogers. There is your Leviathan." I could barely hear him for the wind. Then I realized that it was only because we had the communications on that I could hear him at all, though he was but two feet from me.

"Stop them, Captain," I shouted. "If we don't fire, it will pass us."

"No, Mr. Rogers. Hear this, men. The shot that fells the beast gets another ten percent of my share. Now, Mr. Rogers. Now I get my eye back, and the men of the Essex, and the right to bring the fruit of this Hell back to Earth. Now is the moment all mankind has waited for. Now. Will you deny me that? Will you, Mr. Rogers?"

I COULDN'T answer. It was too late. One of the emplacements had brought its weapon to bear and fired at what seemed point blank range. The sound was deafening above the roar of the wind. I felt the wind tear at my clothes and saw the blinding flash and then heard the sound of the detonation. Kingsford stood firm through all this. "Again," he shouted. "Again." Then he fell forward, the wind tearing at him. I fell to my knees then, the wind dragging at me, and felt a mound at my side. It was the base of a projection of stone. I undid my waist clasp and secured myself to the projection and reached out to Kingsford. I grasped his wrist and hung on as I saw the flame and smoke whirled away and sucked into the funnel of the monster as it turned toward the center of the camp. Kingsford was like a limp rag, dragging in the wind against my hand. The animal had veered directly toward the camp site. It was over the ship. It dwarfed the Algonquin, easily ten times its size. I saw solid objects floating toward its funnel mouth. I was deafened by the roar of the wind now, but I saw that the objects were men and equipment. I thought I heard screams, but it must have been the roaring of the wind. Then I saw both its eyes, huge yet blind, and everything about me rushing

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toward the mouth of the funnel. Then the ship began to come apart and I could see nothing in the devastating clouds of dust and smoke that surrounded me, a solid mass fleeing at unbelievable speed toward a center I could no longer determine. Once, during this horror, I felt a weight lifted from the strain on my body. I did not realize at once that it was Kingsford being torn away from my grasp. After that, I gave myself up to what might be. I could no longer breathe, no longer see, no longer feel, but by some monstrous miracle, the stone projection to which I was clasped held securely and only in semi-consciousness was I aware of the gradual diminution of all sound and wind, and a slow returning to silence of this vast hell of a planet. Some time later, I opened my eyes to the magnificent glare of early morning sunlight in full splendor.

Nothing about me had remained. Of the men, the emplacements, the conveyors, refinery or reactor, indeed of the Algonquin herself I saw nothing more. Only a plain. A vast, arid plain, where once there had been forty some men and myself, a ship that mirrored the pinnacle of human technology, and the semblance of a habitable, arable land. I was alone.

I remember now that I forced myself to stand. I remember that I walked for endless hours, searching but not finding the least sign of a crew, a ship, a life in which I was Executive Officer Philip Rogers. I remember I spoke one word over and over again as I walked, the word vanity, and I cried aloud to myself until I could think and walk and speak and cry no more. Then I fell to the ground and dug my way into a sleep of unconsciousness for I don't know how long. When I wakened, it was night, a night this time with the cool light of two moons casting a double shadow of my hand as I raised it for something that my eyes could see. I stood and walked again. I walked until the night began to fade and I was in a land of greens and warm forest shadows.

I HAVE grown to recognize every sign of the animals. When they come, a desert remains in their path. I must find another oasis. But things grow rapidly here. A desert is replaced by a pasture for their grazing in not too many weeks, or it may be months. I no longer count. Kingsford was wrong, of course. This was not his personification of evil. Nor had his monster grown in his absence. They are the sole specie of this place. After a time you grow to recognize the difference, and I have

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er, hunched over the controls. "OK, Jimper, I won't give up if you won't; but that's an almighty big rabbit you're going to have to pull out of that miniature hat!"

9

IT was not a good landing. Vallant unstrapped himself, got to his feet, holding onto the couch for support. Jimper crept out from under the folded blankets that had fallen on him, straightening his cap.

"We're a couple of miles short of the mark, Jimper," Vallant said. "I'm sorry; it was the best I could do."

"Now must we hasten, Vallant; deep among the blue peaks lies Galliale; long must we climb." Jimper opened his knapsack, took out a tiny miniature of a standard vacuum suit, began pulling it on. Vallant managed a laugh.

"You came prepared, fella. I guess your friend Jason made that for you."

"Even in this suit, Jimper will be cold," the long nose seemed redder than ever. He fitted the grape-fruit-sized bowl in place over his head. Vallant checked the panel. The screens were dead; the proximity indicator dial was smashed. He donned his suit hurriedly.

"They saw us crash; they'll pick a flatter spot a few miles back; that gives us a small head start." He cycled the port open; loose objects fluttered as the air whooshed from the ship; frost formed instantly on horizontal surfaces.

Standing in the open lock, Vallant looked out at a wilderness of tilted ice-slabs, fantastic architectural shapes of frost, airy bridges, tunnels, chasms of blue ice.

"Jimper—are you sure—out there . . ?"

"High among the ice peaks," Jimper's tiny voice squeaked in Vallant's helmet. "Jimper will lead you."

"Lead on, then." Vallant jumped down into the feathery drift-snow. "I'll try to follow."

The slopes were near-vertical now, polished surfaces that slanted upward, glinting darkly. The tiny arc-white sun glared between two heights that loomed overhead like cliffs. In the narrow valley between them, Vallant toiled upward, Jimper scampering ahead.

Far above a mighty river poured over a high cliff, thundering down into mist: its roar was a steady rumble underfoot.

Abruptly, Jimper's voice sounded in a shrill shout. "Vallant! Success! The Gateway lies ahead!"

Vallant struggled on another step, another, too exhausted to

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answer. There was a sudden heavy tremor underfoot. Jimper sprang aside. Vallant looked up; far above, a vast fragment detached itself from the wall, seeming to float downward with dream-like grace, surrounded by a convoy of lesser rubble. Great chunks smashed against the cliff-sides, cascaded downward; the main mass of the avalanche shattered, dissolved into a cloud of ice-crystals. At the last moment, Jimper's warning shrilling in his ears, Vallant jumped for the shelter of a crevice. A torrent of snow poured down through the sluice-like narrow, quickly rising above the level of Vallant's hiding place. His helmet rang like a bell bombarded with gravel, then damped out as the snow packed around him. Profound silence closed in.

"Vallant!" Jimper's voice came. "Are you safe?"

"I don't know . . ." Vallant struggled, moved his arms an inch. "I'm buried; no telling how deep." He scraped at the packed snow, managed to twist himself over on his face. He worked carefully then, breaking pieces away from above, thrusting them behind. He was growing rapidly weaker; his arms seemed leaden. He rested, dug, rested . . .

THE harsh white star that was the sun still hung between the ice-cliffs when Vallant's groping fingers broke through and he pulled himself out to lie gasping on the surface.

"Vallant—move not or you are surely lost!" Jimper piped in his ears.

He lay, sprawled, too tired even to lift his head.

"The Not-men," Jimper went on. "Oh, they are close, Vallant."

"How close?" Vallant groaned.

"Close . . . close."

"Have they seen me?"

"Not yet, I think—but if you stir—"

"I can't stay here . . ." With an effort, Vallant got to his hands and knees, then rose, tottered on, slipping and falling. Above, Jimper danced on a ledge, frantic with apprehension.

"It lies just ahead!" He shrilled. "The gateway to my Land of Galliale; only a little more, Vallant! A few scant paces . . ."

Ice chips flew from before Vallant's face. For a moment he stared, not understanding—

"They have seen you, Vallant!" Jimper screamed. "They shoot; oh, for a quiver of bolts . . !"

Vallant turned. A hundred yards below, a party of four suited figures—men or Niss—tramped upward. One raised the gun as a warning.

"Vallant—it is not far! Hasten!"

"It's no use," Vallant gasped. "You go ahead, Jimper. And I

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hope you find home again, up there in the ice."

"Jimper will not desert you, Vallant! Come, rise and try again!"

Vallant made a choking sound that was half sob, half groan. He got to his feet, lurched forward; ice smashed, a foot away. The next shot knocked him floundering into a drift of soft snow. He found his feet, struggled upward. They were shooting to intimidate, not to kill, he told himself; they needed information—and there was no escape . . .

There was a ridge ahead; Vallant paused, gathering strength. He lunged, gained the top as a near-miss kicked a great furrow in the ice; then he was sliding down the reverse slope. A dark opening showed ahead—a patch of rock, ice-free, the mouth of a cave. He rose, ran toward it, fell, then crawled . . .

It was dark suddenly; Vallant's helmet had frosted over. He groped his way on, hearing the sharp ping! of expanding metal.

"This way!" Jimper's voice rang in his helmet. "We will yet win free, Vallant!"

"Can't go . . . farther . . ." Vallant gasped. He was down now, lying on his face. There was a minute tugging at his arm. Through the frost melting from his face-plate, he saw Jimper's tiny figure, pulling frantically at his sleeve. He got to his knees, stood, tottered on. A powerful wind seemed to buffet at him. Wind—in this airless place . . .

Without warning, a gigantic bubble soundlessly burst; that was the sensation that Vallant felt. For a moment he stood, his senses reeling; then he shook his head, looked down over his helmet, saw packed earth walls, shored by spindly logs. Far ahead, light gleamed faintly—

A terrific blow knocked him flat. He rolled, found himself on his back, staring toward four dark figures, silhouetted against the luminous entrance through which he had come a minute before.

"I will bring rescuers!" Jimper's voice shrilled in Vallant's helmet.

"Run!" Vallant choked. "Don't let . . . them get you, too . . ."

Faintness overtook him . . .

"Do not despair, Vallant," Jimper's voice seemed faint, far away. "Jimper will return . . ."

They stood over him, three Niss, grotesque and narrow-faced in their helmets, and one human, a whiskery, small-eyed man. Their mouths worked in a conversation inaudible to Vallant. Then one Niss made a downward motion with his hand; the man stepped forward, reached—

Suddenly, a wooden peg stood against the grey-green fabric of his ship-suit, upright in the cen-

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ter of his chest. A second magically appeared beside it—and a third. The man toppled, clutching . . . Behind him a Niss crouched, a flick of scarlet tongue visible against the gape of the white mouth—

A shaft stood abruptly in its throat. It feel backwards. Vallant raised his head; a troop of tiny red- and green-clad figures stood, setting bolts and loosing them. A Niss leaped, struck down two—then stumbled, fell, his thin chest bristling. The last Niss turned, ran from sight.

"Vallant!" Jimper's voice piped. "We are saved!"

Vallant opened his mouth to answer and darkness closed in.

10

VALLANT lay on his back, feeling the gentle breeze that moved against his skin, scenting the perfumed aroma of green, growing things. Somewhere, a bird trilled a melody. He opened his eyes, looked up at a deep blue sky in which small white clouds sailed, row on row, like fairy yachts bound for some unimaginable regatta. All around were small sounds like the peeping of new-hatched chicks. He turned his head, saw a gay pavilion of red and white striped silk supported by slim poles of polished black wood topped with silver lance-heads. Under it, around it, all across the vivid green of the lawn-like meadow, thronged tiny man-like figures, gaudily dressed, the males with caps and crossbows, or armed with footlong swords, their mates in gossamer and the sparkle of tiny gems.

At the center of the gathering, in a chair like a doll's, a corpulent elf lolled in the shadow of the pavilion. He jumped as he saw Vallant's eye upon him. He pointed, peeping excitedly in a strange, rapid tongue. A splendidly dressed warrior walked boldly toward Vallant, planted himself by his outflung hand, recited a speech.

"Sorry, Robin Goodfellow," Vallant said weakly. "I don't understand. Where's Jimper?"

The little creature before him looked about, shouted. A bedraggled fellow in muddy brown came up between two armed warriors.

"Alas, Vallant," he piped. "All is not well in my land of Galliale."

"Jimper—you look a bit on the unhappy side, considering you brought off your miracle right on schedule . . ."

"Something's awry, Vallant. There sits my king, Tweeple the Eater of One Hundred Tarts—and he knows not his Ambassador, Jimper!"

"Doesn't know you . . .?" Vallant repeated.

"Jason warned me it would be so," Jimper wailed. "Yet I scarce

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believed him. None here knows faithful Jimper . . ."

"Are you sure you found the right town? Maybe since you left—"

"Does Jimper not know the place where he was born, where he lived while forty Great Suns came and went?" The mannikin took out a three-inch square of yellow cloth, mopped his forehead. "No, Vallant; this is my land—but it lies in the grip of strange enchantments. True, at my call the King sent warriors who guard the cave to kill the Not-men—the Evil Giants—but they would have killed you, too, Vallant, had I not plead your helpless state, and swore you came as a friend. We Spril-folk have ever feared the memory of the Evil Giants.

"Kill me?" Vallant started to laugh, then remembered the shafts bristling in the bodies of the Niss. "I've come too far to get myself killed now."

"Near you were to a longer journey still, Vallant. I know not how long the king will stay his hand."

"Where are we, Jimper? How did we get here?"

The king's men dragged you here on a mat of reeds."

"But—how did we get out of the cave . . .?"

"Through the Portal, Vallant—as I said, yet you would not believe!"

"I'm converted," Vallant said. "I'm here—wherever here is. But I seem to remember a job of world-saving I was supposed to do."

Jimper looked stricken. "Alas, Vallant! King Tweeple knows naught of these great matters! It was he whom Jason told of the Great Affairs beyond the Portal, and the part the Folk must play."

"So I'm out of a job?" Vallant lay for a moment, feeling the throb in his head, the ache that spread all through his shoulder and back.

"Maybe I'm dreaming," he said aloud. He made a move to sit up—

"No, Vallant! Move not, on your life!" Jimper shouted. "The King's archers stand with drawn bows if you should rise to threaten them!"

VALLANT turned his head; a phalanx of tiny bowmen stood, arrows aimed, a bristling wall of foot-tall killers. Far away, beyond the green meadow, the clustered walls and towers of a miniature city clung to a hillside.

"Didn't you tell the King that I came to help him?"

"I pledged my life on it, Vallant—but he names me stranger. At last he agreed that so long as you lay sorely hurt, no harm could come of you—but take

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care! The King need but say the word, and you are lost, Vallant!"

"I can't lie here forever, Jimper. What if it rains?"

"They prepare a pavilion for you, Vallant—but first must we prove your friendship."

Jimper mopped his face again. Vallant stared up at the sky.

"How badly am I hurt?" Vallant moved slightly, testing his muscles. "I don't even remember being hit."

"A near-miss, meant to warn you, Vallant—but great stone chips are buried in your flesh. The King's surgeons could remove them—if he would so instruct them. Patience now, Vallant; I will treat with him again."

Vallant nodded, watched as Jimper, flanked by his guards, marched back to stand before the pudgy ruler. More piping talk ensued. Then Jimper returned, this time with two companions in crumpled conical hats.

"These are the royal surgeons, Vallant," he called. "They will remove the flints from your back. You have the royal leave to turn over—but take care; do not alarm him with sudden movements."

Vallant complied, groaning; he felt a touch, twisted his head to see a two-foot ladder lean against his side. A small face came into view at the top, apprehensive under a pointed hat. Vallant made what he hoped was an encouraging smile.

"Good morning, doctor," he said. "I guess you feel like a sailor getting ready to skin a whale . . ." then he fainted.

11

VALLANT sat on a rough log bench, staring across the four-foot stockade behind which he had been fenced for three weeks now—as closely as he could estimate time, in a land where the sun stood overhead while he slept, wakened, and slept again. Now it was behind the tops of the towering poplar-like trees, and long shadows lay across the lawns under a sky of green and violet and flame. A mile away, lights glittered from a thousand tiny windows in the toy city of Galliale.

"If I could but convince the King," Jimper piped dolefully, a woebegone expression on his pinched features. "But fearful is the heart of Tweeple; not like the warrior kings of old, who slew the Evil Giants."

"These Evil Giants—were they the Niss?"

"Well night it be, Vallant. The legends tell that they were ugly as trolls and evil beyond the imagining of man or Spril. Ah, but those were brave days, when the Great Giants had fallen, and only the Folk fought on."

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"Jimper, do you suppose there's any truth in these legends of yours?"

The tiny mannikin stared. "Truth? True they be as carven stone, Vallant! True as the bolt sped from my bow! Look there!" He pointed to a gaunt stone structure rising from a twilit hill beyond the forest to the east.

"Is that a dream? But look at the stones of it! Plain it is that Giants raised it once, long and long ago."

"What is it?"

"The Tower of the Forgotten; the legend tells that in it lies a treasure so precious that for it a King would give his crown; but the Thing of Fear, the Scaled One, the Dread Haik set to guard it by the Evil Giants, wards it well, pent in the walls."

"Oh, a dragon, too. I must say you have a completely equipped mythology, Jimper. What about these Great Giants—I take it they were friendly with the Spril?"

"Great were the Illimpi, Vallant, and proud were the Spril to serve them. But now they are dead, vanished all away; and yet, some say they live on, in their distant place, closed away from their faithful Folk by spells of magic, and the Scaled Haik of the Niss."

"Jimper—you don't believe in magic?"

"Do I not? Have I not seen the Cave of No Return with my own eyes—and worse, passed through it?"

"That's the tunnel we came in by, Jimper. You went through it with your friend Jason on the way out—and now you've returned."

"Ah, have I indeed, Vallant? True it is I passed through the Cave—and only my sworn fealty to my King forced me to it—but have I returned in truth? Who is there who welcomes my return?"

"I admit that's a puzzler . . ."

"Tales have I heard of others, long ago, who came from the cave, strangers to the Tribe of Spril—and yet of our blood and customs. Always they talked of events unknown, and swore they had but ventured out into the Blue Ice—and now I am of their number; the stranger in his own land, whom no one knows."

VALLANT rose, looking across toward the city. A long procession of torch-bearers was filing from the city gates, winding across the dark plain toward Vallant's stockade. "It looks as though we have visitors coming, Jimper."

"Woe, Vallant! This means the King has decided your fate! Well has he wined this night—and drink was never known to temper the mercy of the King!"

"If they're coming here to fill me full of arrows, I'm leaving!"

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"Wait, Vallant! The captain of the guard is a decent fellow; I'll go to meet them. If they mean you ill, I'll . . . I'll snatch a torch and wave it thus . . ." He made circular motions above his head.

Vallant nodded. "OK, partner—but don't get yourself in trouble."

Half an hour later, the cavalcade halted before Vallant, Jimper striding beside the breastplated Captain. He ran forward.

"Mixed news, Vallant; This is the judgement of the King: that you shall stand before him in his Hall, and show proof that you are friend to the Spril-folk; and if you fail . . ."

"If I fail?" Vallant prompted.

"Then shall you enter the Cave of No Return, whence no man or Spril has ever come back."

The main avenue of the city of Galliale was ten feet wide, cobbled with cut stones no bigger than dice, winding steeply up between close-crowded houses, some half-timbered, others of gaily patterned masonry, with tiny shops below, gay with lights and merchandise, and open casement windows above, from which small, sharp-nosed faces thrust, staring at the looming giant who strode along, surrounded by the helmeted warriors of the King, toward the dazzling tower of light that was the Royal Palace of Tweeple the Eater of One Hundred Tarts.

"I don't understand why his highness isn't content to let me sit out there under my canopy and smell the flowers," Vallant said to Jimper, who rode on his shoulder. "I've even volunteered to be his royal bodyguard—"

"He sees you grow well and strong, Vallant. He fears you may yet turn on the Folk as did the Evil Giants in the olden time."

"Can't you convince him I'm the good variety? I'd be handy to have around if that Niss who escaped came back, with a couple of his friends."

"Never will he return, Vallant!" All who enter the Cave—"

"I know—but if he sends *me* out there in the cold, I'm likely to turn around and sneak right back in—tradition or no."

"Ah, if Jason were but here to vouch for you," Jimper piped. "Well he knew the tongue of the Spril, and wondrous the tales he told; charmed was King Tweeple, and many were the honors of Jason the Giant. But now, alas, the King knows naught of all these things."

"How did Jason happen to find Galliale?"

"He told of a great battle fought between the worlds, where Niss died like moths in the flame under the mighty weapons of the men of Earth—"

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"The old man talked to me about a war; he said we lost."

"Jason's ship was hurt," Jimper went on. "He fell far, far, but at last brought the ship to ground among the Blue Ice crags. He saw the Portal among the snows—the same in which we fought the Notmen, Vallant—and so he came to Fair Galliale."

"And then he left again—"

"But not until he had tarried long and long among us, Vallant. At his wish, sentinels were posted, day and night, to watch through the Cave of No Return, which gives a fair view of the icy slopes and the plain beyond, for sight of men. Often, when he had drunk a hogshead or two of the King's best ale, he would groan, and cry aloud to know how it went with the battle of the Giants; but he knew the magic of the Cave, and so he waited. And then one day, when he had grown old and bent, the sentries gave him tidings, that a strange vessel lay in view beyond the Cave. Grieved was the King, and he swore that he would set his bowmen to guard the entrance to that enchanted path, that Jason the Teller of Tales might not walk down it to be seen no more; but Jason only smiled and said that go he would, asking only that an Ambassador be sent with him, to treat with the Giants; and it was I, Jimper, warrior and scholar, whom the King chose."

THAT was quite an honor; too bad he doesn't remember it; and I'm sorry I don't know any stories I could charm the old boy with. I haven't made much headway with the language yet."

"Long before Jason there was another Giant who came to Galliale," Jimper chirped. "No talker was he, but a mighty Giant of valor. The tale tells how he went in against the Scaled One, to prove his love to the King of those times. I heard the tale from my grandfather's father, when I was but a fingerling, when we sat in a ring under the moons and talked of olden times. He came from the Cave—hurt, as you were Vallant. And the King of those times would have slain him—but in sign of friendship, he entered the Tower of the Forgotten, there to battle the Fanged One who guards the treasures. Then did the king know that he was friend indeed, and of the race of goodly Giants—"

"And what happened to him in the end?"

"Alas, never did he return from the Tower, Vallant—but honored was his memory!"

"That's a cheery anecdote. Well, we'll find out in a minute what Tweeple has in mind."

The procession had halted in the twenty-foot Grand Plaza before the palace gates. The warriors formed up in two ranks, flanking Vallant, bows ready. Be-

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yond a foot-high spike-topped wall, past a courtyard of polished stones as big as dominoes, the great two-foot high entrance to the palace blazed with light. Beyond it, Vallant caught a glimpse of intricately carved panelling, tiny-patterned tapestries, and a group of Spril courtiers in splendid costumes, bowing and curtsying as the plump elf-king waddled forth to stand, hands on hips, staring up at Vallant.

He spoke in a shrill voice, waving ringed hands, pausing now and again to quaff a thimble-sized goblet offered by a tiny Spril no taller than a chipmunk.

He finished, and a servant handed him a scarlet towel to dry his pink face. Jimper, who had climbed down and taken up a position in the row of Spril beside the King, came across to Vallant.

"The King says . . ." He paused, swallowed. "That his royal will is . . ."

"Go ahead," Vallant urged, eyeing the ranks of ready bowmen. "Tell me the worst."

"To prove your friendship, Vallant—you must enter the Tower of the Forgotten, and there slay the Fanged One, the Scaled One, the Eater of Fire!"

Vallant let out a long sigh. "You had me worried there for a minute, Jimper," he said, almost gaily. "I thought I was going to provide a target for the royal artillery—"

"Jest not, Vallant!" Jimper stamped angrily. "Worse by far is the fate decreed by the King! Minded am I to tell him so—"

"Don't get yourself in hot water, Jimper: it's OK. I'm satisfied with the assignment."

"But, Vallant! No one—not even a Great Giant—can stand against the Fearsome One whom the Evil Giants set to guard the tower!"

"Will he be satisfied if I go into the Tower and come out again alive—even if I don't find the dragon?"

"Delude yourself no more, Vallant! The Scaled One waits there—"

"Still—"

"Yes, to enter the Tower is enough. But—"

"Fair enough. I may not come out dragging the body by the tail, but the legend won't survive the experience. When do I go?"

"As soon as may be . . ." Jimper shuddered, then drew himself erect. "But have no fear, Vallant; Jimper will be at your side."

Vallant smiled down at the tiny warrior. "That's a mighty brave thing to do, Jimper; I wish I could put your mind at rest about the dragon."

Jimper looked up at him, hands on hips. "And I, Vallant, wish that I could stir in you some healthful fear." He turned, strode back across the courtyard

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to the King, saluted, spoke briefly. A murmur ran out from the group of courtiers; then a treble cheer went up, while tiny caps whirled high. The King signalled, and white-clad servitors surged forward, setting up tables, laying out heaped platters, rolling great one-quart barrels into position.

"The King decrees a night of feasting, Vallant!" Jimper chirped, running to him. "And you too shall dine!"

Vallant watched while a platform normally used for speeches was set up and vivid rugs as fine as silk laid out on it; then he seated himself and accepted a barrel of ale, raised it in a toast to the King.

"Eat, drink, and be merry . . ." he called.

"If you can," Jimper said, mournful again, "knowing what tomorrow will bring."

12

IN the fresh light of morning, Vallant strode across the emerald velveteen of the Plain of Galliale, feeling the cool air in his face, ignoring the throb in his head occasioned by last night's five barrels of royal ale, watching the silhouette of the tower ahead growing larger against the dawn sky. A long sword—a man-sized duplicate of the tiny one at Jimper's belt—brought from the King's treasury of Ancient Things for his use, swung at his side; in his hand he carried a nine-foot spear with a head of polished brass. Behind him trotted a full battalion of the Royal Guard, lances at the ready.

"I'll have to admit that King Tweeple went all-out in support of the expedition, Jimper," Vallant said. "Even if he did claim he'd never heard of your friendly giant."

"Strange are the days when valued tales of old are unknown to the king. But no matter—pleased is he to find a champion."

"Well, I hope he's just as pleased when I come out and report that the Scaled One wasn't there after all."

Jimper looked up from where he scampered at Vallant's side. He was splendid now in a new scarlet cloak and a pink cap with a black plume. "Vallant, the Scaled One dwells in the Tower, as sure as blossoms bloom and kings die!"

Another quarter hour's walk brought Vallant and his escort through the forest of great conifers and out onto a wild-grown slope where long mounds overgrown with vines and brambles surrounded the monolithic tower at its crest. Near at hand a slab of white stone gleamed through underbrush. Vallant went close, pulled the growth away to reveal a weathered bench-top.

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"Hey, it looks as though someone used to live here—and a giant at that." He glanced at the tumuli, some large, some small, forming an intersecting geometric pattern that reached up to the tower's base.

"Those are the ruins of buildings, and walls; this whole hilltop was built up at one time—a long time ago."

"Once those Giants whom the Spril served dwelt here," Jimper piped. "Then the Evil Giants came and slew our masters with weapons of fire; there was a great king among the Spril in those days, Vallant: Josro the Sealer of Gates. He it was who led the Folk in the war against the Ugly Ones." He looked up at the Tower. "But, alas, the Scaled One lives on to wall away the treasure of the Illimpi."

"Well, let's see if we can go finish the job, Jimper. Vallant went up past the mounded ruins. At the top he paused, looking back down the silent slope. "It must have been beautiful once, Jimper," he said. "A palace of white marble, and the view all across the valley . . ."

"Fair it was, and enchanted is its memory," Jimper said. "Long have we feared this place, but now we come to face its dreads. Lead on, Vallant; Jimper is at your side!"

A shrill trumpet note pierced the air. The troop of King's Lancers had halted. Their captain called an order; the two-foot lances swung down in a salute.

"They wait here," Jimper said. "The King will not risk them closer—and they guard our retreat, if the Scaled One should break out, which Fate forfend!"

Vallant returned the salute with a wave of his hand. "I guess if you believe in dragons, to come this far is pretty daring." He glanced down at Jimper. "That makes you a regular hero, partner."

"And what of you, Vallant! In your vast shadow Jimper walks boldly, but you go with only your lance and blade to meet the Terrible One!"

"That doesn't count; I don't really expect to meet him."

NOW four warriors came forward, stumbling under the weight of a foot-long box slung from their shoulders by leather straps. They lowered it gingerly before Vallant, scampered back to the ranks.

"What's this, a medal—already?" Vallant pressed a stud on the side of the flat box; its lid popped up. Nestled in a fitted case lay a heavy electro-key of unfamiliar design. Vallant picked it up, whistled in surprise.

"Where did this come from, Jimper?"

"When long ago the Sprill-folk slew the Evil Ones, this did they

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find among the spoils. Long have we guarded it, until our Goodly Giants should come again."

Vallant examined the heavy key. "This is a beautiful job of microtronic engineering, Jimper. I'm beginning to wonder who these Giants of yours were." He went up the last few yards of the vine-grown slope to the vast door of smooth, dark material which loomed up in the side of the tower; the structure itself, Vallant saw, was not of stone, but of a weathered synthetic, porous and discolored with age.

"I'd give a lot to know who built this, Jimper," he said. "It must have been a highly technical people; that stuff looks like it's been there for a lot of years."

"Great were our Giants, and great was their fall. Long have we waited their return. Now it may be that you, Vallant, and Jason, are the first of those ancient ones to come back to your Galliale."

"'Fraid not, Jimper. But we can still be friends." Vallant studied the edge of the door.

"Looks like we'll have to dig, Jimper. The dirt's packed in here, no telling how deep." Jimper unsheathed his eight-inch sword, handed it to Vallant. "Use this; a nobler task could not be found for it."

Vallant set to work. Behind him, the ranks of the bowmen stood firm, watching. The unyielding surface of the door extended down six inches, a foot, two feet, before he came to its lower edge.

"We've got a job ahead, partner," he said. "I hope this snoozing dragon of yours is worth all the effort."

"For my part," Jimper said, "I hope the sound of our digging awakens him not too soon."

TWO hours later, with the door cleared of the packed soil and an arc excavated to accommodate its swing, Vallant returned Jimper's sword, then took the key from the box.

"Let's hope it still works; I'd hate to try to batter my way past that . . ." He lifted the key to the slot in the door; there was a deep-seated click!, a rumble of old gears.

"It looks as though we're in business."

Vallant hammered back the heavy locking bar that secured the massive door; then, levering with his swordblade, he swung the thick panel back, looked into a wide corridor inches deep in dust. The Captain of the Guard and four archers came up, waiting nervously to close the door as soon as Vallant was safely inside. Jimper sneezed. Vallant stooped, lifted him to his shoulder. He waved to the escort, who raised a nervous cheer, then stepped into the dust of the cor-

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ridor, watched as the door slowly clanked shut behind him.

"We're in, Jimper," he said. "Now—which way to the dragon?"

Jimper fingered his cross-bow, staring ahead along the dim hall. "H-he could be anywhere . . ."

"Let's take a look around." Vallant explored the length of the corridor which circled the tower against the outer wall, floundering through dust drifted deep under the loopholes high in the walls. At one point a great heap almost blocked the passage. He kicked at it, yelped; rusted metal plates showed where the covering of dust was disturbed.

"It looks like a dump for old armor," he complained, clambering over the six-foot obstruction. "Maybe this was an early junkyard . . ." Jimper muttered fretfully. "Walk softly, Vallant . . ."

They completed the circuit, then took a stairway, mounted to a similar passage at a higher level. Everywhere the mantle of dust lay undisturbed. They found rooms, empty except for small metal objects of unfamiliar shape, half buried in dust. Once Vallant stooped, picked up a statuette of bright yellow metal.

"Look at this, Jimper," he said. "It's a human figure . . .!"

"True," Jimper agreed, squinting at the three-inch image. "No Spril form is that."

"This place must have been built by men, Jimper! Or by something so like them that the differences don't show. And yet, we've only had space travel for a couple of centuries—"

"Long have the Giants roamed the worlds, Vallant."

"Maybe—but humans have been Earth-bound until just lately. It's comforting to know that there are other creatures somewhere that look something like us —I guess."

THEY followed corridors, mounted stairs, prowled through chambers large and small. Faint light from tiny apertures in the walls was the only illumination. High in the tower, they came to a final narrow flight of steps. Vallant looked up.

"Well, if he's not up here, I think we can consider the mission accomplished."

"Certain it is that somewhere lurks the Dread One," Jimper chirped. "Now l-let him b-beware!"

"That's the spirit." Vallant went up the stairs—gripping his sword now in spite of his scepticism; if there were anything alive in the tower, it would have to be here . . .

He emerged in a wide, circular room, high-vaulted, thick with dust. A lustrous cube, white, frosty-surfaced, twelve feet on a side, was mounted two feet clear

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of the floor at the exact center of the chamber. It seemed almost to glow in the dim room. Cautiously, Vallant circled it. The four sides were identical, unadorned, shimmering white.

Vallant let his breath out, sheathed the sword. "That's that," he said. "No dragon."

Perched on his shoulder, Jimper clutched his neck.

"I fear this place, Vallant," he piped. "We have blundered—I know not how . . ."

"We're all right, old timer," Vallant soothed. "Let's take a look around. Maybe we can pick up a souvenir to take back to old Tweeple—"

"Vallant, speak not with disrespect of my King!" Jimper commanded.

"Sorry." Vallant's boots went in to the ankle as he crossed the drifted floor to the glistening polyhedron; he touched its surface; it was cool, slippery as graphite.

"Funny stuff," he said. "I wonder what it's for?"

"Vallant, let us not linger here."

Vallant turned, looked around the gloomy room. Vague shapes bulked under the dust blanket. He went to a tablelike structure, blew at it, raising a cloud that made Jimper sneeze. He brushed at the array of dials and bright-colored knobs and buttons that emerged from the silt.

"It's some kind of control console, Jimper! What do you suppose it controls?"

"L-let us depart, Vallant!" Jimper squeaked. "I like not these ancient rooms!"

"I'll bet it has something to do with that . . ." Vallant nodded toward the cube. "Maybe if I push a couple of buttons—" He jabbed a finger at a large scarlet lever in the center of the panel. It clicked down decisively.

"Vallant—meddle not with these mysteries!" Jimper screeched. He crouched on Vallant's shoulder, eyes fixed on the lever.

"Nothing happened," Vallant said. "I guess it was too much to expect . . ." He paused. A draft stirred in the room; dust shifted, moving on the table-top.

"Hey—" Vallant started.

Jimper huddled against his neck, moaning. Dust was flowing across the floor, drifting toward the glossy surface of the cube, whipping against it—and beyond. Vallant felt the draft increase, fluttering the fabric of his shipsuit. The dust was rising up in a blinding cloud now; Vallant ducked his head, started toward the door. The wind rose to whirlwind proportions, hurling him against the wall; air was whining in through the loopholes; dust whipped and streamed, flowing to the face of the cube, which glared through the obscuring veil now

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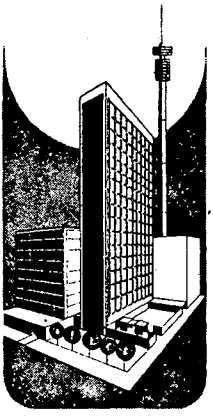

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with a cold white light. Vallant lunged again for the door, met a blast like a sand-storm that sent him reeling, Jimper still clinging to his perch. He struggled to a sheltered angle between floor and wall, watched as the wind whirled the dust away, scouring the floor clean, exposing a litter of metallic objects. Nearby lay a finger-ring, an ornate badge, an odd-shaped object that might have been a hand-gun. Beyond were a scatter of polished metal bits, the size and shape of shark teeth.

Now, suddenly, the wind was lessening. The white-glaring rectangle was like an open window with a view of a noon-day fog. The last swirls of dust flashed toward it and were gone. The shrilling of the gale died. The room was still again.

"Now must we flee . . ." Jimper whistled; he flapped his cloak, settled his pink cap, edging toward the door. Vallant got to his feet, spitting dust. "Not yet, Jimper. Let's take a look at this . . ." He went close to the glowing square, stared at it, reached out a hand—

And encountered nothing.

He jerked the hand back quickly.

"Whew! That's cold!" He massaged the numbed hand. "Half a second, and it was stiff!"

Somewhere, far away, a faint, metallic clanking sounded.

"Vallant! He comes!" Jimper screeched.

"Calm down, Jimper! We're all right. It was a little thick there for a minute, but I suppose that was just some sort of equalization process. Or maybe this thing is a central cleaning device; sort of a building-sized vacuum cleaner—"

ABRUPTLY, the panel before Vallant dimmed. Shapes whipped across it. The shadowy outlines of a room appeared, sharpened into vivid focus. Sounds came through: an electronic hum, the insistent pinging of a bell, then a clump of hurried feet.

A man appeared, stood staring across at Vallant, as through an open doorway.

Or almost a man.

He was tall—near seven feet, and broad through the shoulders. His hair curled close to his head, glossy black as Persian lamb, and through it, the points of two short, blunt horns protruded, not quite symmetrically, on either side of the nobly rounded skull.

He spoke—stacatto words in a language strange to Vallant. His voice was deep, resonant.

"Sorry, sir," Vallant got out, staring. "I'm afraid I don't understand . . ."

The horned man leaned closer. His large dark-blue eyes were fixed on Vallant's.

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"Lla," he said commandingly.

Vallant shook his head. He tried a smile; the majestic figure before him was not one which inspired the lighter emotions. "I guess—" he started, then paused to clear his throat. "I guess we've stumbled onto something a little bigger than I expected . . ."

The horned man made an impatient gesture as Vallant paused. He repeated the word he had spoken. Vallant felt a tug at the knee of his suit.

"Vallant!" Jimper peeped. Vallant looked down. "Not now, Jimper—"

"I think—I think Jimper understands what the Great Giant means. In the ceremony of the crowning of the king, there is the phrase, *"'qa ic' lla . . ."* It is spoken in the old tongue, the speech of long ago; and the wise elders say those words mean 'when he speaks! He would have you talk . . ."

The horned giant leaned toward Vallant, as though to see below the edge of the invisible plane between them. Vallant stooped, raised Jimper up chest-high. The mannikin straightened himself; then, standing on Vallant's hand, he doffed his feathered cap, bent nearly double in a deep bow.

"Ta p'ic ih sya, Illimpi," he chirped.

A remarkable change came over the horned man's face. His eyes widened; his mouth opened —then a vast smile lit his face like a floodlight.

"I' Ipliti!" he roared. He turned, did something out of sight of Vallant beyond the edge of the cube, whirled back. He spoke rapidly to Jimper. The little creature spread his hands, looking contrite.

"N'iqi," he said. *"N'iqi, Illimi."*

The giant nodded quickly, looked keenly at Vallant.

"Lla, Vallant," he commanded.

He knows my name . . ." Vallant gulped. "What am I supposed to talk about?"

"He is a Great Giant," Jimper peeped excitedly. "Well he knows Jimper's kind, from of old. Tell him all, Vallant—all that has befallen the race of Giants since last the Portal closed."

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VALLANT talked for five minutes, while the giant beyond the invisible barrier adjusted controls out of sight below the Portal's edge.

". . . when I came to, I was here—"

The giant nodded suddenly. "Well enough," he said clearly. Vallant stared in surprise. The horned man's lips, he noticed, did not move in synchronization with his words.

"Now," the giant said, "what world are you?"

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"What . . . how . . . ?" Vallant started.

"A translating device; I am Cessus the Communicator. What world are you?"

"Well, I would have said I was on Pluto, except that . . . I couldn't be. And on the other hand, I must be . . ."

"Your language . . . A strange tongue it is; none that I have known in my days in the Nex. Best I find you on the Locator . . ." He flipped unseen levers; his eyes widened.

"Can it be?" He stared at Vallant. "A light glows on my panel that has not been lit these ten Grand Eons . . . that of Lost Galliale . . ."

Vallant nodded eagerly. "That's right—Galliale is what Jimper calls the place. But—"

"And your people; are all—as you?"

"More or less."

"None have these?" he pointed.

"Horns? No. And this isn't my home world, of course. I come from Terra—third from the sun."

"But—what of the Illimpi of Galliale?" The giant's face was taut with strain.

"Nobody lives here but Jimper's people. Right, Jimper?"

"True," Jimper spoke up. "Once the Evil Giants—foes of the Great Giants—came; but from thicket and burrow we crept, after the last Great Giant fell. We loosed our bolts to find their marks in vile green hide, then slipped away to fight again. So we dealt with them all, we bowmen, for against our secret bolts, of what avail their clumsy lightnings? The last of them fled away down the Cave of No Return, and free at last was My Land of Galliale from their loathsome kind. Now long have we waited for our Giants to come back; and in their absence have we tilled and spun and kept fair the land."

"Well done, small warrior," Cessus said. He studied Vallant's face. "You are akin to us—that much is plain to see; and you dwell on the double world that lies third from the sun—so some few survivors made good their secret flight there—"

"Survivors of what?"

"Of the onslaught of those you call the Niss."

"Then—what the old man said was true? They're invaders—"

"That, and more, Vallant! They are the bringers of darkness, the all-evil, the wasters of worlds!"

"But—they haven't wasted the Earth; you hardly notice them; they're just a sort of police force —"

"They are a poison that stains the Galaxy. Long ago, they came, destroying—but listen; this was the way of it:

"Ages past, we Illimpi built the Portal—this block of emptiness

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before which you stand—linking the star-clouds. We sent colonists into the fair new world of Galliale—adventurers, man and woman, the brave ones who never could return; and with them went the Spril-folk, the faithful Little People.

"They thrived, and in time they built a Gate—a useful link to a sunny world they called Olantea, circling in the fifth orbit of a yellow sun twenty light-years distant. There they built cities, planted gardens that were a delight to the senses.

"Then, without warning, the Niss came to Galliale, pouring through the Gateway, armed with weapons of fire. Swift and terrible was their assault, and deadly the gases they spread abroad, and the crawling vermin to spread their plagues. The peaceful Illimpi of Galliale battled well, and volunteers rushed through the Great Portal to their aid. But deadly were the weapons of the Niss; they carried the Tower of the Portal and some few, mad with blood-lust, rushed through it, never to return. Then the Portal failed, and lost was our link with our colony. The long centuries have passed, and never did we know till now how it fared with Lost Galliale."

"So the Spril finished off the Niss, after the Niss had killed the Illimpi? Nice work, Jimper. But how did you manage it?"

"Proof were we against their sickness," Jimper piped. "But no defense had they against our bows."

"If the Niss are such killers, why haven't they used their weapons on us? The story the Syndarch tells is that they're our great friends, sharing their wisdom—"

"Proof have we seen of that lie," Jimper chirped. "Deep are the plots of the Niss."

"It is the Portal they seek," Cessus said. "All who came to Galliale were lost to them."

"Just a minute," Vallant cut in. "I'm lost. The Niss came through the Gateway from Olantea—but that was held by the Illimpi. The Niss must have hit them, and captured the Gateway—which I take it is some sort of matter transmitter. But why wasn't Galliale warned? And why is it none of the Galliales escaped through the Portal here, back to the home world? And how did the Gateway get shifted from Olantea to Pluto—"

CESSUS was growning in puzzlement. "Do you not know, Vallant—"

"Vallant!" Jimper cocked his head. "The Scaled One—I hear him stir!"

"It's your imagination, Jimper. We've explored the whole building, and didn't find him, remember?"

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The horned man was looking at Jimper. "What manner of creature is this Scaled One?"

"It's just a superstition of Jimper's—" Vallant started.

"A Haik, Great Giant," Jimper shrilled. "A guardian set by the Niss when they had closed the Portal against the Illimpi, before they fared forth against the Spril, from which adventure no Niss returned—"

Cessus whirled on Vallant. "How have you restrained the beast?"

Vallant's mouth opened. "I hope you don't mean—" he began—

There was a sudden clangor as of armor clashing against stone.

"The Fanged One comes!" Jimper shrilled.

"What weapon have you!" Cessus rapped out.

"Just this ham-slicer . . ." Vallant gripped the sword-hilt. "But I have a feeling it's not quite what the program requires . . ."

The clatter was louder now; Jimper screeched; the horned Giant whirled to reach behond the screen's edge—

There was a screech of tortured steel from the doorway; a hiss like an ancient steam-whistle split the air. Vallant spun, stared at a vast *thing*—like a jumble of rusted fragments of armor plate, wedged in the doorway, scrabbing with legs like gleaming black cables three inches thick, armed with mirror-bright talons which raked grooves in the hard floor as though it were clay. From a head like a fang-spiked mace, white eyes with pinpoint pupils glared in insane ferocity. The haik surged, sending chips of the door-frame flying as it forced its bulk through the narrow way.

"Ye Gods!" Vallant yelled. "Jimper, why didn't you tell me this thing really existed!"

"Tell you I did, Vallant; now slay it with your sword!"

"What good is a hat-pin against a man-eating rhino like that!" Vallant backed, watching as the material of the wall chipped and crumbled under the force of the haik's thrust. His eye fell on the gun-like object on the floor. He jumped for it, caught it up, raised it and pressed the button on its side. A lance of blue flame licked out, touched the haik's snout. The monster clashed its jaws, gained another foot. The flame played on its cheek, dimmed abruptly, fell back to a weak yellowish glow, died with a harsh buzz. Vallant threw the weapon from him.

"Vallant!" Jimper shrieked. "The door-frame! It crumbles . . !"

"Sorry, Jimper! I guess we'll just have to round up a posse and come back after him . . !" Vallant grabbed up the little

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creature, stepped to the screen—

"No, Vallant!" the horned man shouted—

"Here I come, ready or not—" Vallant closed his eyes, and stepped through the Portal.

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THERE was an instant of bitter cold; then silence, a touch of cool air, an odor of almonds . . .

Vallant opened his eyes. A great, dim, vaulted hall arched high above him; far away, mighty columns loomed into shadows. Beyond, an iodine-colored wall towered up, misty with distance, decorated in patterns of black lines set off with glittering flecks of gold and copper.

"Where is he?" Vallant blurted, staring around. "What happened to Cessus the Communicator?"

Jimper huddled against Vallant, peering up into the mists far overhead. "Lost are we now, Vallant. Nevermore will we see the spires of Galliale—nor the drab cities of your world . . ."

"He was right here—and the room behind him . . ."

"Dread are the mysteries of the Great Giants . . ." Jimper keened.

"Well," Vallant laughed shakily. "At least we left the haik behind." He sheathed the unused sword. "I wonder who lives here." Faint echoes rolled back from the distant wall. "We're in a building of some kind; look at this floor, Jimper. Slabs the size of tennis courts. Talk about Giants . . ."

"Vallant—can we not go back? I dread the haik less than I fear this place of echoes."

"Well . . ." Vallant studied the empty air around them. "I don't see anything that looks like a Portal. Maybe if we just feel our way . . ." He took a cautious step, Jimper wriggled down, darted ahead. He paused, puzzled, turned back—and froze, staring. Vallant whirled. At the spot where he had stood, a glossy black cable, dagger tipped, writhed in the air, three feet above the stone floor.

"The haik!" Jimper squealed. With a deafening screech, the many-spiked head of the monster appeared, followed an instant later by its two-ton bulk, crashing thunderously through the Portal. For a moment it crouched as though confused; then at a sound from Jimper, it wheeled with murderous speed on its intended victims.

Vallant whipped out the sword. "Run, Jimper. Maybe I can slow him down for a second or two—"

Jimper snatched the crossbow from his back, fitted a six-inch quarrel in place, drew and let fly; the dart whistled past Vallant's head, glanced off the haik's armor. The creature gaped tooth-

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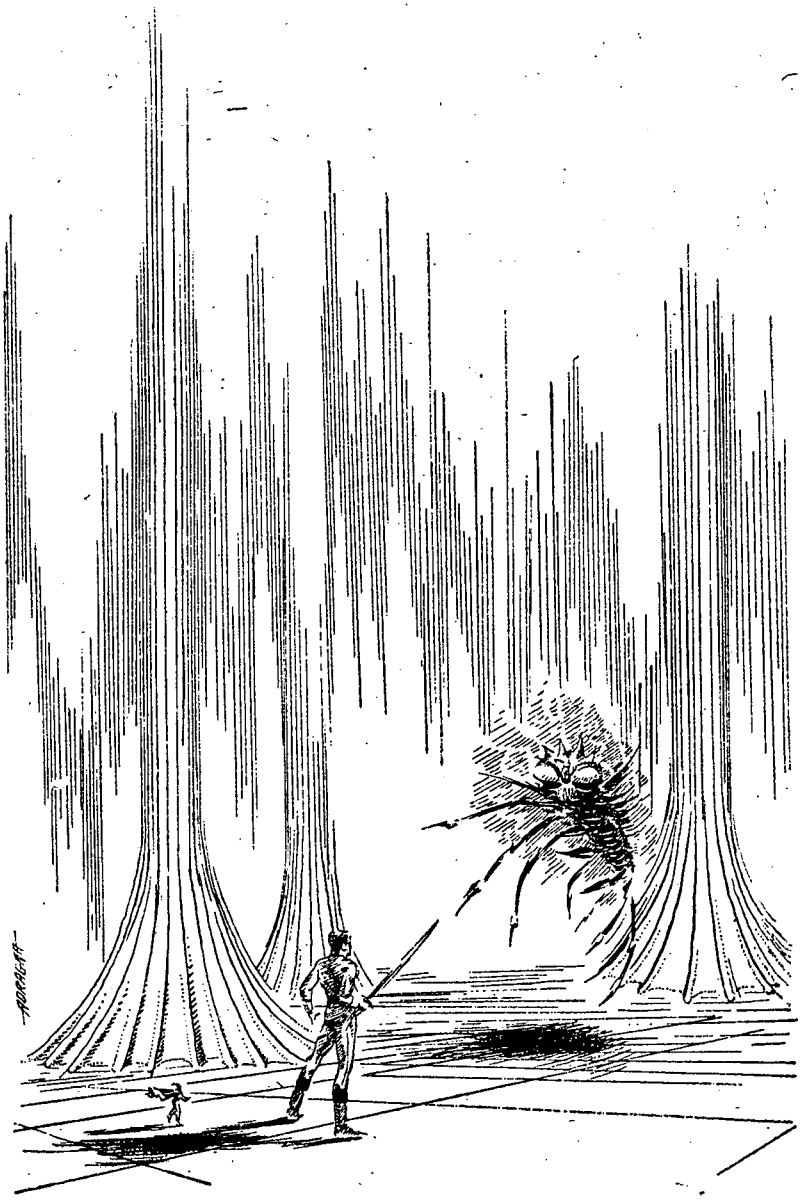

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ringed jaws, dug in its talons for the spring—

There was a sudden rush of air, a shriek of wind. From nowhere, a vast grid slammed down, struck with an impact that jarred the floor, knocked Vallant from his feet. He scrambled up, saw the grid receding as rapidly as it had come. The broken thing that had been the haik flicked cable-legs in a last convulsion, then lay, a shattered, rusted hulk, leaking thin fluid against the stone.

"Whatever that was," Vallant said shakily, "it just missed us . . ." He looked up. Far up in the dimness, a great pale shape hung, a misty oblong, with smaller dark patches, whose outline wavered and flowed, bulging and elongating—

Then it withdrew and was gone.

"Jimper . . !" Vallant croaked. "Did you see that . . ?"

"I saw naught, Vallant," Jimper shrilled. "The haik charged and then—I know not."

"It was . . ." Vallant paused to gulp. "A face . . . a huge, rubbery face, a mile long and five miles up . . . and I'd swear it was looking right at me . . !"

"Another invasion of mind-fleas in the Hall," said a voice as clear as engraved print.

"Ill-struck, Brometa," a second voice answered. *"I hear their twittering still."*

"Vallant!" Jimper gasped. "Those there are who speak close by—and in the tongue of the Spril-folk—yet I see them not . . ."

"N-nonsense," Vallant gulped. "They're speaking English . . . But where are they?"

"We should have plugged the hole they burrowed last time," the silent voice said, *"Here, give me the whisk; I'll attend to these fleas—"*

"No!" Vallant yelled at the top of his lungs, staring upward into the formless shadows. "We're not fleas . . !"

"Yapud! Did you hear words amid the twitterings just now?"

There was a pause; distant rumblings sounded. *"You must have imagined it, Brometa—"*

"I heard it just as you raised the whisk—"

"Don't do it!" Vallant bellowed.

"There! Surely you heard that! It rang in my mind like a light-storm."

"Yes, I do believe you're right!"

Staring upward, Vallant saw the vast cloud-face appear again, its shape changing.

"I see nothing, Yapud."

"We're friendly!" Vallant shouted. "Don't swat us!"

"These fleas have the same irritating way of projecting thought forms out of all proportion to their size—

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"More of those hate-scorched vermin who infested the Hall last Great Cycle? Swat them at once!"

"No, this is another breed. Those others—Niss, they called themselves—what a vicious mind-stink they raised before we fumigated! Hmmm. This one seems quite different, Yapud."

"Vermin are vermin! Give me the whisk—"

"Hold! Little enough I have to divert me here; let me converse awhile with these noisy fleas."

"What transpires, Vallant?" Jimper peeped. He gazed worriedly up at Vallant. "Who speaks in Jimper's head?"

"I don't know, Jimper—but it's something that thinks I'm a flea, and doesn't even know about you."

"Here, you fleas; I'll put a paper on the floor; step upon it, that I may lift you up where I can lay eyes on you."

THERE was a great rushing of air. A vast, white shape rushed down, blotting out the mists above. Vallant and Jimper dropped flat, clung to crevises in the floor against the rush of air that whistled past. An immense, foot-thick platform thudded to the floor fifty feet away, stretching off into the distance. The wind howled and died.

"We're supposed to climb up on that, Jimper," Vallant said. "So they can get a look at us."

"Must we?"

"I guess we'd better—if we don't want to get whisked, like the haik."

Vallant and Jimper got to their feet, walked across to the ragged-edged, spongy mat, clambered up on it. At close range, the fibres that comprised it were clearly visible; it was like a coarse felt of pale straw.

"OK," Vallant hailed. "Lift away . . ."

They lost their balance as the platform surged up beneath them: a white light appeared, grew. Their direction of motion changed; the paper tilted sickeningly; then, with an abrupt lurch, came to rest. The glare above, like a giant sun, cast blue shadows across the white plain behind them. A mile away, two unmistakable faces loomed, block-long eyes scanning the area, their changing shapes even more alarming at close range.

"There it is!" A shape like a vast blimp floated into view, pointing.

"Yes—and isn't that another one beside it—a hatchling, perhaps?"

"Ah, poor things; a mother and young. Always have I had a soft spot for maternity."

"Here—" Jimper started.

"Quiet," Vallant hissed. "I'd rather be a live mother than whisked."

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"Size is not all," Jimper peeped indignantly.

"Now, small ones. Perhaps you'll tell us of your tiny lives—your minuscule affairs, your petty sorrows and triumphs; and who knows? Maybe there'll be a lesson therein for wise T'tun to ponder."

How can it be that they know the speech of the Spril?" Jimper chirpped.

"They don't—it's some kind of telepathy; it comes through as English, for me."

"Here—natter not among yourselves; explain your presence—"

"Not so harshly, Yapud; you'll frighten the tiny things."

"None so quick to fear are we!" Jimper piped. "Know that we have passed through many strange adventurings, and no enemy yet has seen our heels!"

"Ah, this could prove diverting! Start at the beginning, bold mite; tell us all."

"Very well," Jimper chirped. "But at the end of my recital, hopeful I am you'll hold out aid to two poor travellers, lost far from home."

"These fleas wish to bargain . . ?"

"The offer is fair. Begin."

"When Jason the Giant would leave Fair Galliale to seek again his home-land," Jimper chirped, "Jimper was chosen to travel at his side . . ."

THERE was a moment of silence when Jimper, assisted at points by Vallant, had finished his account.

"So," the being called Yapud said, *"The mind-fleas admit they burrowed a path through our walls—"*

"A remarkable achievement, for such simple creatures," Brometa said calmly.

"Hmmph! I see nothing remarkable in the series of blundering near-disasters these fleas managed to devise for themselves; why, even a slight exercise of intelligent effort would have aligned their environment correctly—"

"Yes, Yapud, I've been puzzling over that; and I think I have the answer; these tiny mites dwell in a three-dimensional space—"

"Spare me your allegorical apologia—"

"I'm being quite objective, Yapud! These entities—intelligent entities, too, mind you—are confined to a three dimensional frame of reference; obvious relationships are thus forever beyond their conceptualization."

Vallant and Jimper stood together, watching the vast faces change and writhe like shapes of smoke as the creatures conversed.

"Remind them of their promise, Vallant," Jimper chirped.

Vallant cleared his throat. "Ah

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. . . now, about our difficulty; you see—"

"You mean," Yapud said, ignoring him, *"that they crawl about, cemented to a three-dimensional space, like so many Tridographs?"*

"Precisely! As we move about, presenting various three-dimensional views to their gaze, our appearances must seem to alter quite shockingly. Of course, the concept of viewing our actual forms in the hyper-round, from outside, as it were, is quite beyond them!"

"Poof! You're quite wrong; you've already admitted they tunnelled into the Hall, which certainly required manipulation in at least four dimensions!"

"Hmmm." Another pause. *"Ah, I see: the tunnel was punched through their space by another more advanced species; look for yourself, Yapud."*

There was another pause. *"Well . . . yes, I see what you mean. . . . Odd. . . . Did you notice the orientation of the tunnel?"*

"No, I hadn't—but now that you mention it, I'm beginning to see why these poor creatures have had such a time of it . . ."

"Please, fellows, if you don't mind," Vallant spoke up. "My friend and I are hoping you'll be able to help us out; you see, it's very important that we get back —"

"That, of course, is out of the question," Yapud interrupted. *"We'll swat these fleas and plug the hole, and then on to other matters . . ."*

"Not so fast, my dear Yapud. The energies required to plug the tunnel would be quite fantastic. You realize, of course, that it constitutes an infinitely-repeating nexus series—"

"All this is very interesting, I'm sure," Vallant put in, "but unfortunately, it's over our heads. Couldn't you just direct us back to our-uh-tunnel—"

"That would do you no good; you'd end in Null space—"

"But it leads to the Tower of the Portal—"

"Surely you understand that since you're traversing a series of tri-valued pseudo-continua, via —Dear me, I'm afraid you won't be able to grasp the geometry from your unfortunate three-dimensional viewpoint. But—"

"Here, Brometa, you're only confusing things. Place yourself in their frame of reference, as you suggested yourself a moment ago. Now—"

"But the Portal opened from the Tower; it *has* to lead back there—" Vallant insisted.

"Tsk tsk; three-dimensional thinking. No, the tunnel was devised as a means of instantaneous travel between points apparently distant to a tri-dimensional being. Naturally, the energy dis-

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placed by such a transposition required release; thus, a non-entropic vector was established to a locus bearing a temporal relationship to the point of origin proportional to the value of C."

"Here," Vallant said desperately. "We're not getting anywhere. Could I just ask a few questions—and could you answer in three-D terms?"

"Very well. That might be simpler."

"Where are we?"

"Ummm. In the Hall of the T'tun, in the Galaxy of Andromeda—and don't say you don't understand; I plucked the concepts from your own vocabulary."

Vallant gulped. "Andromeda?"

"Correct."

"But we were on Galliale—"

"The use of the past tense is hardly correct, since the Portal you used will not be constructed for three million years—in your terms, that is."

"I'm not sure my terms are equal to the job," Vallant said weakly. "How did we happen to get into the past?"

"The velocity of light is a limiting value; any apparent exceeding of this velocity must, of course, be compensated for. This is accomplished by the displacement of mass through quaternary space into the past to a distance equal to the time required by light to make the transit. Thus, an 'instaneous' transit of ten light years places the traveller ten years in the subjective past, relative to the point of origin—three-dimensionally speaking."

"Ye Gods!" Vallant swallowed. "Andromeda is over a million light years from Earth; when I went through the Portal, I stepped a million years into the past?"

"A million and a half, to be precise."

"But—when the Illimpi came to Galliale through the Portal, they didn't go into the past—or did they?"

"Oh, I see; there's a further projection of the tunnel, leading . . . Brometa, how curious! The tunnel actually originates here on the site of the Hall! Just a moment, while I scan through. . . ."

"VALLANT," Jimper piped, "what does it all mean?"

"I'm not sure. It seems the Illimpi started from here in Andromeda—and threw a link across to our Galaxy; then they went through, and colonized Galliale—a million and a half years in their past. When I stepped through the Portal, I dumped us another million and a half years back—three million years from Cessus—"

"And, of course," Brometa said, *"the Gateway between Galliale and Olantea will be a similar*

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link, when it is built; it will span merely twenty light-years—"

"Aha!" Vallant exclaimed. "So that's why no one ever comes back from the Cave of No Return, Jimper—they step twenty years into the past when they go out—and another twenty when they come back!"

"Then I came back to Galliale forty years ere I departed?" Jimper squeaked. "Small wonder King Tweeple was leaner, and knew me not . . ."

"But the Niss—the ones that poured through the Gateway into Galliale, back when the Giants were killed off—"

"Twenty thousand years ago," Yapud put in.

"Huh? How do you know?" Vallant said, surprised.

"How? Why, I simply examined the data—"

"Remember," Brometa put in, *"your three-valued space places unnatural limitations on your ability to perceive reality. Three-dimensional 'time' is a purely illusory discipline—"*

"Please, no extended theoretical discourse, Brometa! I'm answering the flea's questions!"

"So twenty thousand years ago, the Niss invaded Galliale from Olantea—and dropped twenty years into their past in the process. They couldn't go back, because they'd step out into Olantea, another twenty years earlier—"

"—where they promptly expired, as is their custom when surrounded by their enemies," Yapud cut in. *"However, on Galliale, they were successful—for a while. When they came, they blazed a path before them with disruptor beams; then they spread plagues which only the Spril survived."*

"And then the Spril wiped out the Niss, by hiding and picking them off." Vallant put in. "But . . . the Galliales should have warned the Olanteans; the invasion came from Olantea—twenty years in the future—and they were in communication with the Olantea of twenty years in the past—"

"They had no opportunity; the Niss held the Gateway. On Olantea, the Niss struck with blind ferocity from space; they descended first on the Olantean satellite; there they set up an engine with the power to shatter worlds. To save the mother world, the Olanteans launched a desperate assault. They carried the Dome under which the Engine had been assembled, and then, quickly, before they could be overcome, they triggered the energies buried deep in the rock. Thus died the moon of Olantea."

"What about the Niss?"

"It was a terrible defeat—but not final. The mighty detonation of the Olantean moon destroyed the equilibrium of the system;

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vast storms swept the planet; when they ceased, it was seen that Olantea had left its ancient orbit, and drifted now outward and ever outward. Snow covered the gardens and the fountains and the towers of Olantea; the seas froze. A winter came which never Spring would follow.

"The Niss—those who remained—struck again—a last, desperate bid to anihilate their enemies. They attacked Olantea, seized the Gateway to Galliale, and poured in their numbers through it, fleeing the cold that now locked Olantea in a mantle of ice. Their fate, you know."

"But—what happened to Olantea?"

"It found a new orbit at last, far from its sun. You call it Pluto."

"And the remains of the moon are the asteroids," Vallant said, awed. "But—Cessus said that humans were related to the Illimpi . . ?"

"Some few Illimpi escaped from dying Olantea to colonize the Earth. There they lived in peace for two hundred centuries —until the first flashes of nuclear explosion summoned the remnant of the Niss from Mars."

"And now they're occupying us," Vallant said. "Snooping around to find a clue to the Portal . . ."

"Bah! That would merely provide us with a plague of the evil nits!" Brometa burst out. *"That, we cannot allow to come to pass. We must give aid to these inoffensive fleas, Yapud—"*

"True," Yapud agreed. *"I confess I was quite carried away, viewing the Niss onslaught and the death of a world as I did, from the three-dimensional viewpoint. I see now that even these mites have feelings of a sort—and the destruction of beauty is a crime, in any continuum!"*

"I suppose the old man—" Vallant stopped suddenly. "He came back—from Galliale! That means he went there—after I met him—and then came back through time, twenty years—"

"Forty years; twenty when he entered Galliale, and twenty more on his departure."

"And he knew! That's why he waited, Jimper! You said he told the King he couldn't leave until the time was right; he posted sentinels by the Gateway to watch the valley of Blue Ice, and settled down to wait. When the Survey Team landed near the Gate, he had his chance!"

"And knowing he would emerge into his past, he brought me with him to prove that he had indeed visited Fair Galliale—"

"But who told him about the Gateway? He—"

"Vallant!" Jimper squeaked. "He came to you, spoke of old days of comradeship, and showed you pictures—"

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"Then—that means he *was* Jason—the same Jason I knew!" Vallant shook his head. "But that means I've already—I mean, *will* see him again. But how can I get three million years into the future?"

"Yes . . . that is something of a problem," Yapud conceded.

"Uh—I know it's asking a lot," Vallant said, "but if you could just transfer us ahead through time . . ."

"No . . . we can scan it—as you visually scan space when you stare into your night sky—but as for travelling in substance—or transmitting three-dimensional beings—"

"Wait—I have a thought," Brometa put in. *"You spoke of the three-dimensional framework; why not . . ."* the conversation turned to technicalities.

VALLANT," Jimper piped. "Will I ever see again the towers of Galliale?"

"We'll know in a minute; they seem to be discussing ways and means . . .

". . . the whisk would be simpler," Yapud was saying, impatiently.

"These Illimpi," Brometa said. *"It's just occurred to me that they're remote descendants of ours, Yapud! We can't allow these Niss-fleas to trouble them."*

"Impossible!"

"But the relationship is quite obvious, once you examine it—"

"Nonsense! Next you'll be saying these fleas are our kin!"

"Hmmm. As to that, they appear to be ancestral to the Illimpi—"

Nonsense! They're the degenerate descendants of the Illimpi who escaped from freezing Olantea to Earth!"

"True—but later, they crossed space via mechanical FTL drive, and colonized Andromeda; later, they recolonized the Milky Way via the Portal—"

"Then it's quite clear!" Yapud exclaimed. *"I told you the Illimpi were no descendants of ours. These mites are our remotest ancestors!"*

"Ancestors?"

"Certainly; they will set up a Portal here, a few years from now, and use it to retransmit themselves to the Milky Way, an additional million and a half years in the past, and from there, they will reestablish a new link to Andromeda, three million years prior to now, and so on, in order to study their past—"

"Stop!" Vallant called. "You're making my head ache. Compared to this, the business of Jason and I telling each other about the Gateway is nothing! But how can I start the ball rolling if I'm stranded here?"

"Obviously, we can't allow that to happen," Brometa said.

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"There's no telling what it might do to the probability stress-patterns. But as to how—"

"Just a minute, Brometa," Yapud cut in. *"Place yourself in their three-valued universe for a moment; if the transit were made strictly within the parameters of their curious geometry, the aleph and gimel factors would cancel out nicely—"*

"Why—how obvious! It should have occurred to me, Yapud!"

"Have you thought of something?" Vallant asked anxiously.

"Fleas, if we place you back in your native spaciotemporal coordinates, will you pledge yourselves to purge your galaxy of Niss? We'll prepare a simple pesticide for you; an elementary excitor effect should be adequate; direct it on a Niss and the creature will blaze up nicely, without affecting other forms of energy concentration. I think a range of one light year for the hand model should do . . ."

"I'll attend to preparing a suitable three-dimensional capsule," Yapud put in. *"Rather amusing to realize that these fleas can be confined merely by drawing a plane about them . . ."* his voice faded.

"What are you going to do?" Vallant asked nervously. "I hope you're keeping in mind that we don't live long enough for any really extended processes . . ."

"We'll give you a . . . ah . . . ship, I think the term is. It will travel at a velocity just under that of electromagnetic radiation—and will follow a route which will require three million years for the transit to your home galaxy. Naturally, the subjective elapsed time aboard will be negligible. The duration of the voyage will be adjusted with precision so as to place you in the close vicinity of Earth at the same time that you departed. We'll take a moment to encapsulate the vessel in certain stress patterns, which will render it impervious to unwelcome interference by the Niss or any others—"

With a whoosh! of displaced air which sent Vallant and Jimper skittering across the spongy plain, a gleaming, hundred-foot hull swooped down to settle gently a hundred yards away.

"I've taken the precaution of installing a duplicator for the production of the anti-Niss weapons," Yapud said; *"just set it up in any convenient location and shovel dirt in the hopper at the top—and stand well back from the delivery chute."*

"One other detail," Brometa added. *"Since the Illimpi will be our ancestors, I think we owe it to them to help all we can. If we nudge Olantea from its cold orbit and guide it back to its ancient position, fifth from the Sun, once more it will flower. There seem to be some fifty million Illimpi still*

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there, carefully frozen in special vaults under the ice, awaiting rescue. We can time matters so that they thaw as the Earth-fleas eliminate the last of the Niss.

"That should be a joyous reunion. I note that the first of the new colonists will begin to cross to Galliale as soon as the haik follows the fleas here . . ."

"What of Jimper?" the Spril piped. "Long have I fared from the hills of Fair Galliale . . ."

"Don't worry, Jimper. I'll drop you off; you'll arrive home another twenty years in your past, but I guess it can't be helped."

Jimper looked startled. "I have but remembered another fanciful tale, told to me long ago, by the father of my grandfather, when he was well gone in strong ale. He told of venturing into the Tower, and travelling far, only to return at last to Galliale . . ."

"The old boy had a tale for every occasion," Vallant said.

"You fail to grasp the implication," Jimper sighed. "For him was I named, Vallant . . ."

ABOARD the ship, Vallant slept for a week. When he awoke, Pluto hung silver-black in the viewport. He brought the vessel in over the Blue Ice Mountains, settled it by the cave, watched as Jimper scampered to its opening, turned to wave, and disappeared within.

Nine days later, he swept past startled Niss patrols to slide into Earth's atmosphere; one alien vessel which came too near plunged out of control into the Atlantic.

Vallant landed in wooded country north of Granyauck, left the ship by night, caught a ride into the city. On the campus of the University Complex, he found the vast dormitory in which Jason Able was housed, followed numbers until he reached his room. He knocked. A tall, square-jawed red-head opened the door.

"Oh, hi, Ame," he said. "Been on a trip?"

"I guess you could say that. Pour me a beer, Jase, and I'll tell you all about it . . ." THE END

(continued from page 97)

never seen two the same size, or looking exactly alike. I learned to hide as I have learned to live on this planet. I live, but I wonder whether it can be called a life. I write about what happened, and I tell it to myself aloud. But I prepare no warning for others, for my every waking hour is devoted to the hope that no others will ever come. This is a planet which was never meant for man to discover. Of that, Captain Kingsford was indisputably right.

("Here, the telling of the tale was interrupted. The time of hiding had come again. Philip Rogers retired to the place he had chosen in this forest and bound the clasps he had fashioned and listened for the wind to rise and the sounds that grew louder; and he thought, "This time. Perhaps this time. Yes, perhaps this time.") – THE END

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